Canadian Medical Monthly
V. 5 # 3 March 1920
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THE CANADIAN MEDICAL QUARTERLY

VOLUME IV MARCH, 1920 NUMBER 3

CONTENTS

PAGE

EDITORIAL—

Quarterly to Monthly 1
Juncta Juvant 2
Cotton Process Ether 3

BIOGRAPHICAL—

Sir William Osler 4
Sir Robert A. Falconer

1. Pelvic Inflammation 7
Frederick W. Marlow, F.R.C.S., F.A.C.S.

2. Medical Legislation 24
The Editor

3. Pneumonia Accompanying the Influenza Epidemic 25
H. B. Anderson, M.D., L.R.C.P., M.R.C.S.

4. The Role of the Pre-Natal Clinic 32
J. Gordon Gallie, M.B.

5. Injuries to Blood Vessels 38
Andrew Croll, M.D., F.R.C.S., F.A.C.S., Lieut.-Col., C.A.M.C.

6. Stricture of the Ureter 49
W. A. Cerswell, M.B., M.R.C.S.

7. The History of Influenza 59
F. Arnold Clarkson, M.B.

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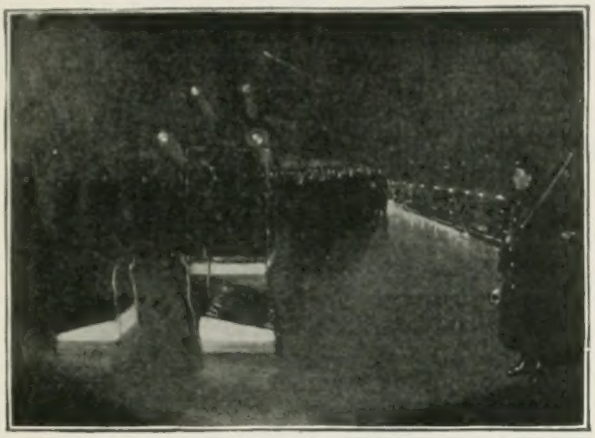

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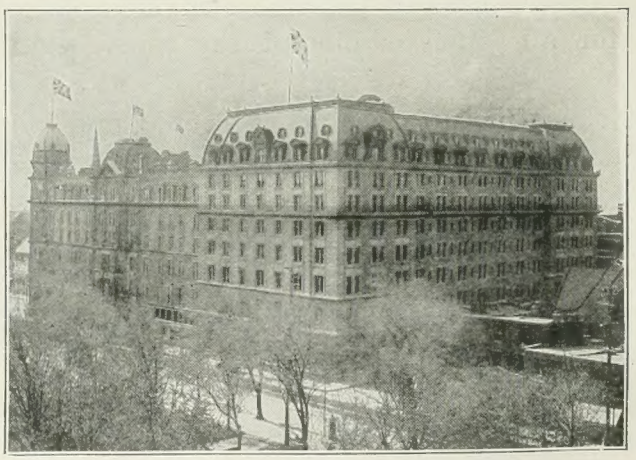

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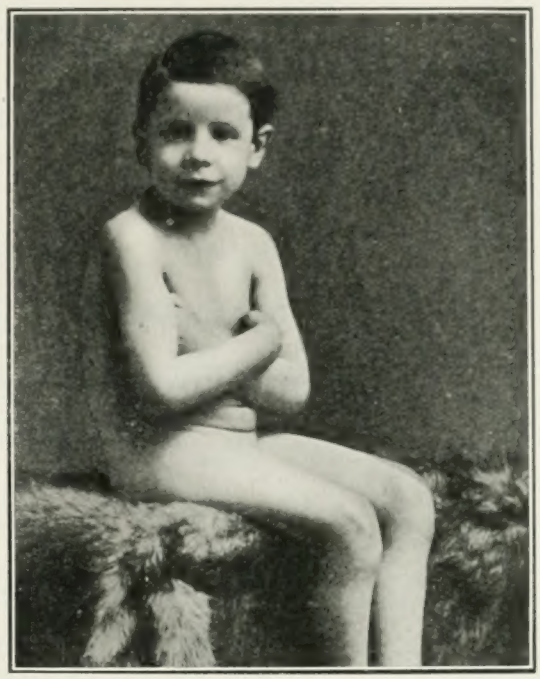

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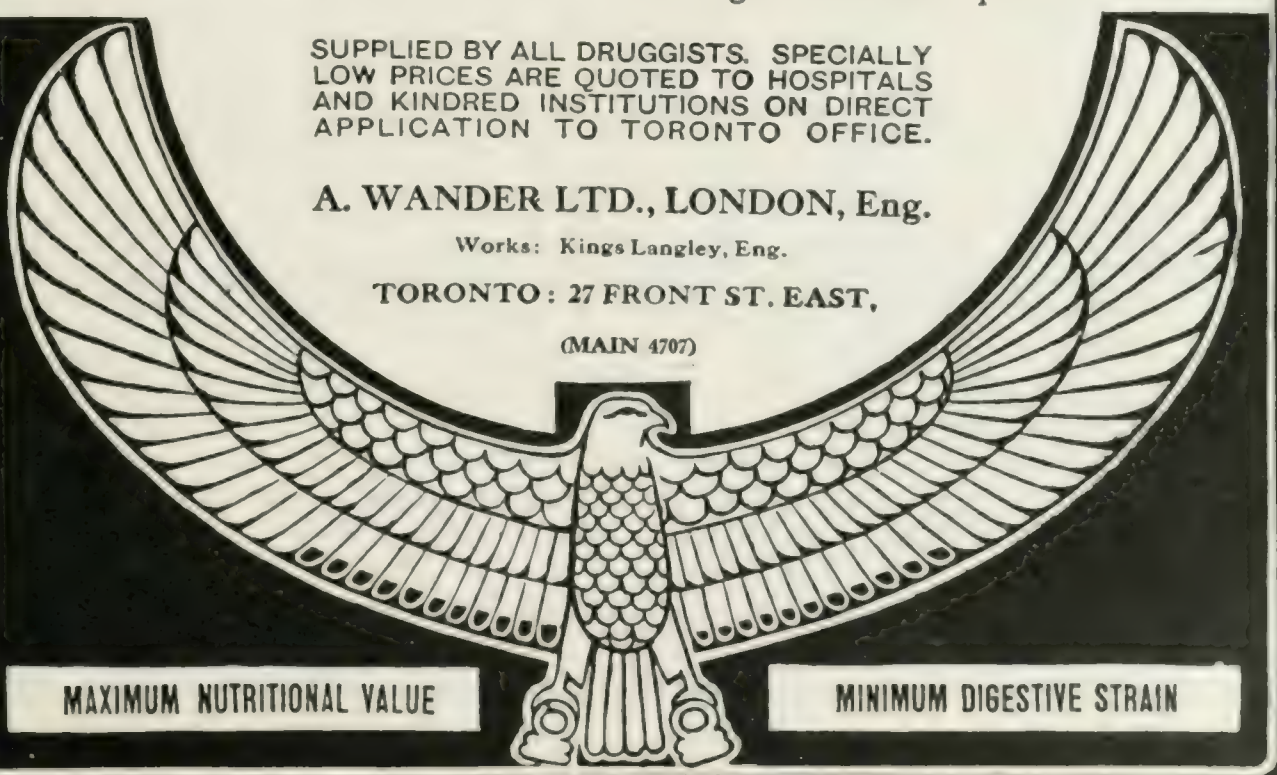

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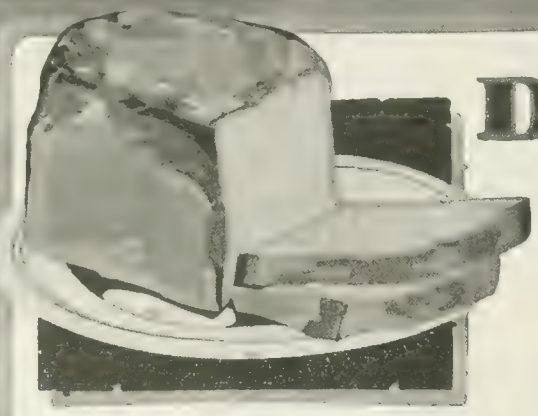

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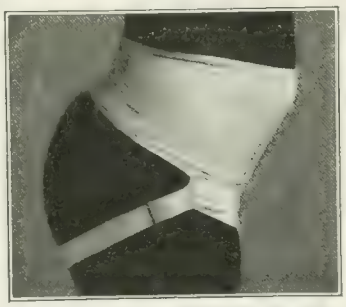

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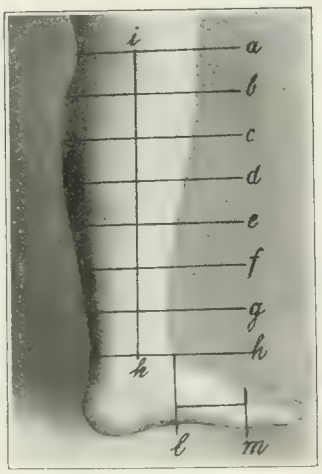

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The Canadian Medical Monthly

VOL. IV., NO. 3 TORONTO, CANADA MARCH, 1920

EDITORIAL

QUARTERLY TO MONTHLY

As with this issue we make our debut as a monthly publication, a few reminiscences and plain facts appear to be in order.

Less than two years ago, in April, 1918, to be exact, the Canadian Medical Quarterly was first issued. Those of our readers who recall the initial copy will readily agree with us that in point of view of size (in every sense of the word) the Journal has experienced most rapid and healthful growth.

Our inception met with many obstacles. We were the official journal of no medical organization. Many were the salutations hurled at us, as for example: "What is this Quarterly?" "Who is behind it?" "Is it a house-organ dodge of the publishers?" etc., etc. Comments pro and con came raining in; ideas both constructive and destructive were frankly offered. Criticisms, some poignantly piqued, others cordially helpful, came in profusion and, may we add, were each and every one of some service in helping us to hew our way through. At this point we take the opportunity to inform the profession that the idea of the Journal was conceived by Messrs. Macmillans in Canada, deans of publishers, from a zealous desire on their part to fill a much-needed requirement in the annals of Canadian medical journalism.

Members of the profession from Halifax to Vancouver were not slow to grasp the possibilities of an independent, unbiased and well-directed publication. Subscriptions reached us from all corners of the Dominion. Many whose comments in our early days were caustic almost to the point of censure, soon came to recognize that the Journal had no hidden ulterior motive on the part of the publishers, and that no surreptitious or clandestine propaganda was being carried on by the Macmillans through the columns of the Journal in connection with their business or furthering their interests.

With a never-ending desire to push forward, it was soon realized that a successful medical journal requires two distinct and well organized departments, namely: Editorial and Publication. The practitioner must look to his colleagues for articles of value and interest to him, but to the publishers for the proper presentation of the material.

Little comment is required as to the Board of Editors, which was formed from among representative members in the profession throughout Canada, and the manner in which they have co-operated is most creditable indeed. That the work of the publishers has been well and faithfully done, is evidenced by the product before you. Thought and care have been exercised in every page, attractive copy, clean advertising and pleasing style being the constant watchword. The joint efforts of Editorial Board and business management soon made for success, which compelled us to issue monthly rather than quarterly in order that the ever-increasing volume of material being sent to us might be given publicity.

It seems quite fitting that this brief dissertation should be concluded by clearly defining our present position. The one and only aim of the Editors is to produce a clean, meritorious, medical publication which shall be read with interest and profit by all members of the profession into whose hands it falls.

JUNCTA JUVANT

In a recent communication from one of our subscribers, the writer very succinctly brought to our attention an opinion worthy of discussion in these columns and one which is no doubt shared by practitioners generally, namely: the paucity of practical, every-day experiences being detailed in the columns of medical journals for the instruction and interest of others.

We hasten to assure our readers that we wholeheartedly share the opinion expressed, and we further desire to go on record as being strongly in favor of promulgating every effort which will stimulate the practitioners in Canada to correct this deplorable inertia.

The columns of medical journals should be open to illuminating discussions from physicians everywhere, and certainly the Canadian Medical Monthly may be counted upon to welcome the use of its pages for such purposes. But why do we find such a dearth of material as that to which this article refers? Such answers as "pressure of work," "feeling of inability to write," etc., etc., have been offered, but the real answer, fellow-practitioners, is a direct indictment of the profession and may be summarized by an absolute lack of unanimity and a callous indifference on the part of the large majority of the profession.

The few localities in Canada where medical men actively participate together in anything like real live organizations stand out in marked contrast

to the every man for himself attitude which is so widely prevalent. It has been argued that the life of a physician has the natural tendency to wall him in with his own special sphere of activity, and this argument, too, conveys certain commendable observations; but it utterly fails to disprove the need of a broader outlook and a more outstanding co-operation.

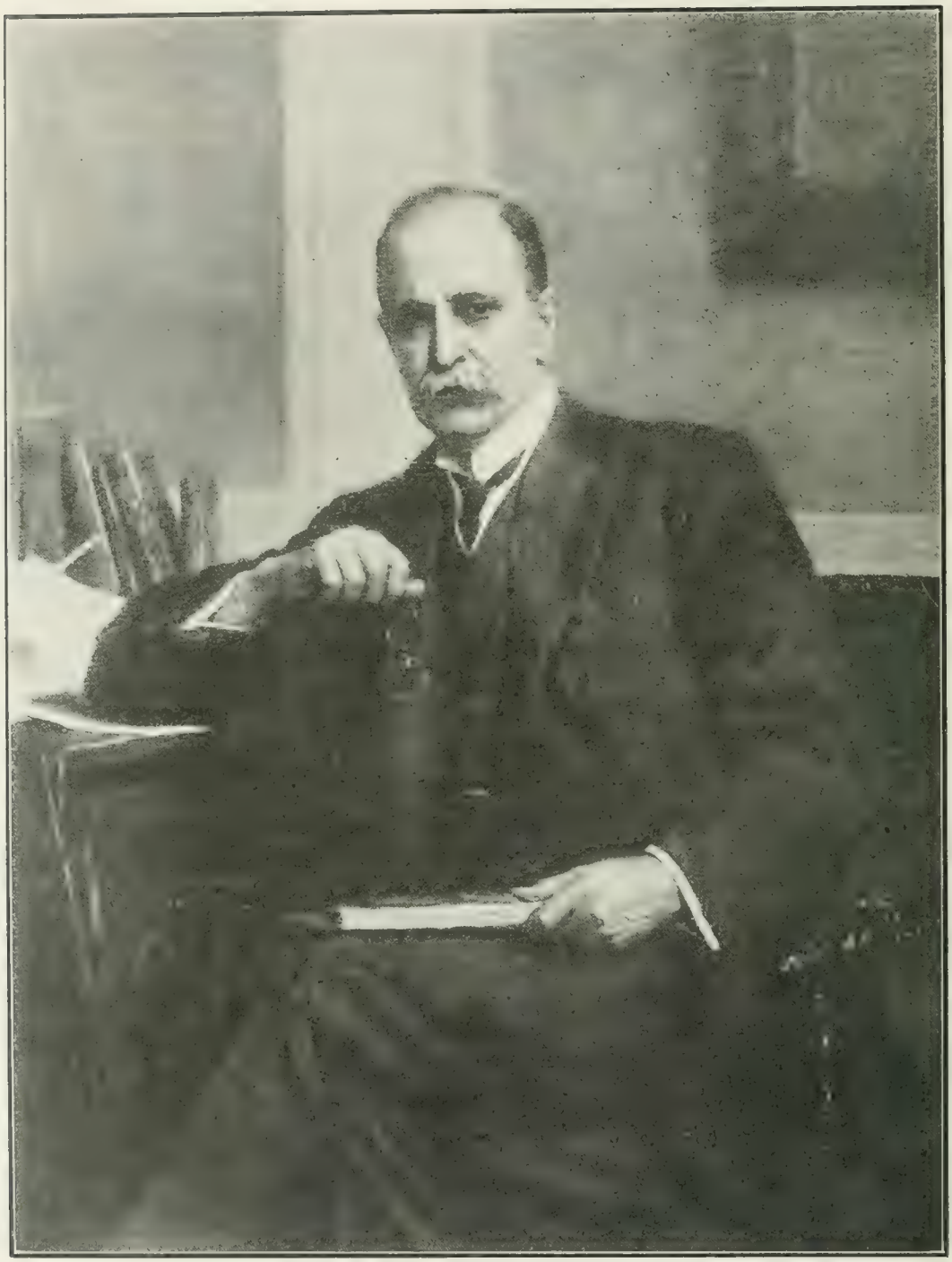
Every day there comes into the life of some physician in Canada an experience which, if reported, would prove of service to others, both within and without the profession. Why, then, not recognize *your* opportunity and duty? Interesting case reports, therapeutic suggestions of proven success in your practice—*anything* which may help your neighbor—should be passed along and the value of medical journals would be considerably enhanced.

COTTON PROCESS ETHER

Following upon careful investigations extending over a period of several years, a new preparation of anæsthetic ether is being offered to the profession. The success which has attended the administration of Cotton Process Ether, as evidenced by the many reports emanating from American cities, is a very fine tribute to the inventor, Dr. James H. Cotton, one of our Editors. As so frequently happens, Canadian interest in the product was lagging, with the result that the new heralded revelation in anæsthesia passed into the hands of an American corporation for manufacture.

How often has one heard it said, "A prophet is not without honour, save in his own country." We are not prepared to authoritatively make the implied application, but there is sufficient evidence to believe that Canada's loss, which has meant United States gain, in no inconsiderable degree, might have been averted.

By referring to our issue of February, 1919, Dr. Cotton's paper, which created considerable interest, will be found. Analgesia, with blocking of the sensory nerve impulses, rather than anæsthesia, with loss of consciousness, denotes the outstanding feature of the ether. The advantages to the patient and surgeon are manifold. Dr. Cotton is to be highly congratulated for his contribution to the advance of medical science.



Sir William Osler, Bart, F.R.S., F.R.C.P.
1849—1919.

SIR WILLIAM OSLER

Sir Robert A. Falconer, President, University of Toronto

It is probable that by the death of Sir William Osler the hearts of more people in the wide world have been touched than by that of any other Canadian. He was well-known in Britain, Canada and the United States, and wherever he was known he was loved. This was because he himself loved his fellow-men and was unfeignedly kind to all. He never forgot his old friends throughout his career, almost meteoric as it was in its brilliant success.

In his essay on "Sir Thomas Browne," whose *Religio Medici* was his closest literary companion from his school-days and the most precious book in his library, Sir William has a pleasant reference to one of his old teachers in Ontario:—"As a boy it was my good fortune to come under the influence of a parish priest of the Gilbert White type, who followed the seasons of nature no less ardently than those of the Church, and whose excursions into science had brought him into contact with physic and physicians. Father Johnson, as his friends loved to call him, founder and Warden of Trinity College School, near Toronto, illustrated that angelical conjunction (to use Cotton Mather's words) of medicine and divinity more common in the sixteenth and seventeenth centuries than in the nineteenth. An earnest student of Sir Thomas Browne, particularly of the *Religio Medici*, he often read to us extracts in illustration of the beauty of the English language, or he would entertain us with some of the author's quaint conceits." This kindly remembrance was doubtless due as much to the boy as to his teacher. Even in his last testament he remembered McGill, the Canadian University with which he had been most closely connected, bequeathing to its library his unique collection of books which, of course, will bear the marks of his character and genius.

Partly from his concern for others, he kept a life-long interest in biography as a recreation, especially that of members of his own profession. Wherever he met a kindly physician with a turn for literature he found one who was close of kin. One of his best-known books, entitled, "An Alabama Student," consists of a series of biographical essays, not too technical, on famous medical men, several of whom made a larger reputation in letters than in their own professions, such as John Keats, Oliver Wendell Holmes, John Locke, Sir Thomas Browne, though Osler never lets the reader think that the medical side is of lesser importance than the literary. Probably the most important essay of all is that on "Harvey and His Discovery," which was delivered as the Harveian Oration at the Royal College of Physicians in London in 1906.

But he also was drawn to a defence of Classical study by the human nature that he found in the Latin and Greek writers, and for the same reason Montaigne was one of his favorites, appealing to him by his worldly wisdom, which was adorned and pointed by allusions or quotations from an extraordinarily wide range of literature. Not unlike Montaigne is the quotation from Locke which

Sir William Osler commended as a rule of life to the medical students of the University of Pensylvania: "Live the best life you can, but live it so as not to give needless offence to others; do all you can to avoid the vices, follies and weaknesses of your neighbors, but take no heedless offence at their divergences from your ideal."

His commanding interest, however, lay in his own profession, in which he found a gospel that he proclaimed with all his fascinating power, "the gospel of his body, which brings man into relation with nature, a true *evangelion*, the glad tidings of a conquest beside which all others sink into insignificance." The thought of human pain moved him to pity, and in alleviating suffering he found the noblest use of his great powers. The poor creatures of our world were to him objects to be redeemed to better things, and in spite of the present evil he kept a brave heart for a brighter day to come. "There is no place for despondency or despair. As for the dour dyspeptics in mind and morals who sit idly croaking like ravens,—let them come into the arena, let them wrestle for their flesh and blood against the principalities and powers represented by bad air and worse houses, by drink and disease, by needless pain, and by the loss annually to the State of thousands of valuable lives—let them fight for the day when a man's life shall be more precious than gold. Now, alas! the cheapness of life is every day's tragedy!"

So tender-hearted a man could not go through life without having his own soul pierced by sorrow, and the war wounded him sorely by the death of his only son, who was also his close companion. Those who saw Sir William in the last year of the war realized how deep was the hurt in his spirit. Still outwardly bright and hospitable as before, a shadow of sadness would in quiet moments rest upon his face and he grew somewhat pensive, but his beautiful home in Oxford remained open to strangers, and many a Canadian will remember with gratitude that Sir William never allowed his private grief to check the welcome with which he continued to receive them.

That he was one of the world's greatest physicians may be taken for granted, but I am unqualified to estimate his contributions to medical science; suffice it to say that I have always heard competent judges speak of him as a marvellous diagnostician and yield to him the highest respect. Surely, however, it was for his qualities of humanity, wisdom, intellect and brilliance compacted in such rare proportions that he was so widely honored. He seems to stand a worthy successor in the line of such English leaders of medicine as Sir James Paget and Lord Lister—in both of whom character enhanced their skill.

One often asks what is most enduring, the precise, scientific contributions that a man has made to his profession, or the quality of his character that has touched thousands of other lives and been a prophylactic against things evil or a cure for ills of both soul and body. In the case of Sir William Osler, I cannot presume to answer, but I am inclined to think that the wisdom and humanity which he has diffused through the written and spoken word may serve equally with his medical discoveries to keep his fame bright among those who have alleviated the sickness and suffering of mankind.

PELVIC INFLAMMATION*

DR. FREDERICK W. MARLOW, F.R.C.S., Eng., F.A.C.S.
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That pelvic inflammation is of such frequent occurrence is because of the following conditions:

First:

There is direct continuity of the lumina of the vagina, uterus and Fallopian tubes and through these a direct channel of communication between the outer surface of the body and the peritoneal cavity;

Second:

Pregnancy terminating in abortion or child-bearing is prone to produce breaks in the walls of the channel, and

Third:

Infection may be either latent in the immediate neighborhood or may be actively introduced by contact from without.

The most common way by which infection gains access to the body is through a breach in the protective epithelial covering of its surface or of its canals:—spreading occurs by direct invasion or by the lymphatics or veins.

The canals are also prone to infection by implantation on their mucous membranes and once infected the infection may spread by direct continuity of tissue. Hence the importance of the communication between the vagina, uterus, tubes and peritoneal cavity and particularly important, too, is the close proximity of the urethra to the vaginal orifice.

Injuries incident to labor or abortion whether natural or produced by instruments frequently provide the breach of the channel wall through which infection is introduced. The infection may be latent in the cervix, urethra, Skene's tubules, vagina, or Bartholin's glands or may be introduced from without by hand, gloves, instruments or appliances, in which case the source of the infection is from the patient's incompletely sterilized skin around the vaginal orifice, this being a place where organisms are likely to lodge in abundance on account of moisture and sodden epithelium; or from the vagina, or from anything introduced through the vaginal orifice bearing infection.

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*Read September 17th, 1919, at Belleville, Ont., at a District meeting of the County Medical Associations of Durham, Northumberland, Hastings, Lennox and Addington, Prince Edward, Peterboro and Victoria.

The close proximity of the pelvic viscera to the intestines may cause them to become involved secondarily by direct extension of such inflammatory processes as appendicitis or diverticulitis.

All pelvic inflammations are due to infection. Acute suppression of menstruation by cold may give rise to symptoms suggesting inflammation, but the reaction is generally of short duration and unaccompanied by ordinary inflammatory changes. It is admitted however that during a severe cold a latent infection may become aggravated.

Of the organisms causing infection the gonococcus probably still deserves first mention, though as a result of the activities of social workers among the profession and the laity, and some legislation, its fate has been decided and it is doomed to pass into oblivion, a result devoutly to be wished. The strepto-coccus is still very active but owing to advances in obstetrical technique its prowess is on the wane.

Certainly this is true in respect of labour, at least of "skilled labour," but it is doubtful if there ever was a time when abortions were more common than at present and as such invariably denotes "unskilled labour" the streptococcus still finds easy employment.

In the absence of the gonococcus and the streptococcus, or even in their presence, staphylococci, pneumococci, colon bacilli or other organisms may be responsible for the infection.

Pelvic inflammation secondary to appendicitis or diverticulitis, is generally caused by colon bacilli.

Tubercle bacilli are not infrequently the cause of pelvic inflammation though such is generally of a more chronic variety.

When infection occurs through a breach in the wall of the genital tract the results largely depend upon the dose and virulence of the organisms, the depth to which they are introduced, the resistance of the hostess and the reaction of the tissues infected. Organisms maintaining latent infection or those introduced from without may be of low virulence, but coming into contact with injured tissues they are rejuvenated and their virulence is multiplied. Especially is this the case if the injury is sufficient to devitalize the tissue cells in the area of its location.

Against the ascent of implantation infection of the genital tract nature has provided more or less efficient barriers in the narrow lumen of the cervix and the cervical and vaginal secretion, and the narrow lumina of the interstitial portions of the Fallopian tubes, and it is beyond question that gonorrhœal infection if carefully, intelligently and persistently treated in the early stages while limited to the urethra, the vagina, or both, can in the vast majority of cases be cured without involvement of the uterus or Fallopian tubes or permanent damage to the genital tract. It might be remarked here, in passing, that the successful treatment of gonorrhœal infection in the female involves a large amount of personal attention on the part of the surgeon in order to successfully eradicate it from its numerous lodging places.

Sepsis of the genital tract is productive of two main types of disease; first, those in which local reaction is slight or non-apparent and in which toxic symptoms are most marked as in septicæmia or thrombo phlebitis, and second those in which there is pelvic inflammation and in which the toxic symptoms accord more or less with the local reaction.

It is mainly the latter type of case which involves one's present attention.

Inflammation implies reaction and a natural result of inflammatory reaction caused by infection is swelling from vascular engorgement and exudation. Hence in pelvic inflammation there is mass formation. This may be slight and produce only a slight degree of density detectable in the vaginal fornices or it may be so great as to fill up the pelvic cavity and even a considerable portion of the abdomen.

Gross lesions resulting and which may exist more or less distinct or may fuse in a variety of combinations are cellulitis, salpingitis, ovaritis or ovarian abscess and pelvic peritonitis.

Localization of pelvic inflammation is favoured by natural conditions. Infection of the cellular tissue is normally confined by the broad and utero-sacral ligaments remaining extraperitoneal, generally limited to one side, occasionally bilateral or involving the tissue between the uterus and the bladder.

When the Fallopian tubes are infected and inflamed their lumina are early blocked by congestion of the numerous folds of their mucous membrane. From retraction of their muscular layers, there is a tendency for the fimbriæ of their outer extremities to become inverted thus opposing their serous surfaces. This facilitates adhesions and the conversion of the tubes into sacs thereby protecting the peritoneal cavity from infection. Failing complete inversion and adhesion of the fimbriæ when inflamed they readily attach themselves to the ovary, the broad ligament or to the pelvic peritoneum elsewhere so that sacto-salpinx results.

Ovaritis even if suppurative tends to be limited to the ovary or ovaries owing to the density of the confining walls.

If the infection reaches the pelvic peritoneum localization is favoured by anatomical and physiological conditions. Immovable pelvic walls, pelvic viscera which though mobile are devoid of active movement, the capacity of the pelvis for containing exudations, limited respiratory movement, gravity and the rapid tendency of inflamed serous membranes to form adhesions all tend to confine the inflammatory process to the pelvis and adjoining lower portion of the abdomen and so to protect the abdominal cavity from general invasion. If therefore some organisms escape into the peritoneal cavity before blocking of an infected tube is complete they are generally taken care of promptly and satisfactorily in the pelvic cavity and lower abdomen and are imprisoned by the rapid formation of a roof; and being imprisoned and surrounded by vital forces to which nature's reinforcements rapidly lend aid, they weaken and gradually perish and lose their potentiality for harm.

Cellulitis most frequently results from streptococcal infection through an injury of the uterus extending into the cellular tissue.

Salpingitis is generally due to an ascending infection of the genital tract the most common organism responsible for it being the gonococcus. Tuberculous salpingitis is probably the next most common variety and next in frequency is that due to extension from appendicitis.

Bilateral Tubo-Ovarian Abscess, Gonorrhœal in Origin, Removed Along with Uterus. Specimen from the Gynæcological Museum, Toronto General Hospital

Ovaritis or ovarian abscess may be the result of a streptococcal infection spreading along the lymphatics but is more commonly due to direct extension from the Fallopian tube when the process of inversion and adhesion of the fimbriæ is incomplete and the ovary aids in the formation of the sactosalpinx. Extension takes place through a wall softened and broken down by the inflammation or may occasionally enter at the site of a recently ruptured follicle. A tubo-ovarian abscess is the product. Colon bacillus infection of the ovary by extension from appendicitis is of fairly frequent occurrence.

Pelvic peritonitis occurs from the extension of infection to the pelvic peritoneum either by way of or through the genital tract or by extension from appendicitis or diverticulitis. In most instances salpingitis and ovaritis are present and occasionally cellulitis as well. The gonococcus, streptococcus, tubercle bacillus, colon bacillus, staphylococcus and pneumococcus are the common causative organisms.

Differentiation of these various lesions is generally quite possible if a satisfactory bimanual examination can be made.

In a typical case of cellulitis there is a firm, fixed, tender mass occupying one side of the pelvis. The uterus is usually displaced somewhat to the opposite side and the mass extends from it to the pelvic wall from which it is quite insep-

arable. The mass may bulge into the lateral vaginal fornix and follow the pelvic wall downwards to a slight extent. Above it may extend beyond the pelvic brim and be felt above Poupart's ligament. Fixation of the mass is complete and unless suppuration occurs it remains firm until resolution has taken place. Should suppuration occur it is generally possible to detect fluctuation between the abdominal and pelvic portions of the mass. The uterus can be distinctly recognized though its mobility is considerably diminished. If the cellular tissue between the uterus and the bladder is involved, a firm, fixed bar of tissue will be felt in front of the uterus. The adnexa on the diseased side can seldom be felt while on the opposite side they are usually normal. By the rectum the utero-sacral ligament on the affected side is felt thickened and dense.

Salpingitis is most frequently bilateral and gives rise to a more or less elongated irregular ovoid mass on either side of the uterus. The masses are firm and tender and are usually fixed, though it is possible to recognize an interval between them and the pelvic wall and to shift them slightly. One or other may extend behind the uterus and fill up the utero-sacral pouch. Each mass is made up of the tube and ovary which have become adherent together and to the broad ligament. The size of one may greatly exceed that of the other and occasionally one side may be uninvolved. The uterus may be well defined though the inflamed adnexa may be adherent to it in such a way as to make it appear enlarged and irregular. Its lateral mobility is removed and its antero-posterior or up and down mobility is greatly diminished.

Ovaritis is difficult to recognize from salpingitis as it so frequently complicates the latter. Ovarian abscess may be recognizable as a rounded, tender, fixed, elastic mass on one or the other side of the uterus, separable from the pelvic wall above and below and not presenting the absolute fixation of a cellulitis. This condition may be bilateral with the uterus definable and fixed between the two masses.

In pelvic peritonitis there is a more marked confusion of the pelvic viscera. The cervix of the uterus is often somewhat closer to the vaginal orifice on account of the uterus being pushed down by the exudation into the pelvis. The lateral fornices rarely bulge but the posterior does and the whole pelvis is more or less filled up with a firm, fixed, tender mass which may extend irregularly upwards into the abdomen producing palpable firm, fixed, tender masses there. The uterus is often ill-defined and sometimes unrecognizable. The mass consists of an agglutination of the inflamed pelvic viscera and peritoneum together with the intestines and omentum involved above and the inflammatory products. Per rectum there is bulging between and above the utero-sacral ligaments and it is there that in the very early stage when the exudations are in a more fluid state than later on or still later when marked suppuration has occurred fluctuation or fluid elasticity can be determined. Also it is there that nature sometimes drains a suppurative peritonitis by rupture through the peritoneum and

the rectal wall, such an event being preceded by a profuse discharge of mucous from the rectum and relaxation of the sphincter ani.

Pelvic inflammation may terminate in resolution, permanent induration, adhesions, or contractions, or in suppuration. General involvement of the peritoneum leading to a fatal issue is rare if nature's processes are duly recognized and respected.

Remote results depend on the parts involved and the degree of the inflammation. A resolved cellulitis may leave no evidence other than slight induration and perhaps contraction of the broad and utero-sacral ligaments on the affected side. The uterus and adnexa are normal and their function is not deranged.

Salpingitis of a mild degree may resolve and thè function of the tubes may be preserved though owing to shedding of epithelium with resulting adhesions of the mucous folds and kinking and pocketing the route of the ovum to the uterus becomes more difficult so that if impregnated on its journey through the Fallopian tube the ovum is apt to become ensnared so that tubal pregnancy is favoured.

Mild degrees of salpingitis in which sactosalpinx results may produce the condition of hydrosalpinx.

Salpingitis of a degree sufficient to block the outer ends of the Fallopian tubes will render the patient sterile.

Mild ovaritis may clear up without ill effect though induration of the capsule or embedding in dense inflammatory adhesion may prevent rupture of the follicles and tend to render the ovary cystic and favour dysmenorrhœa. Failure of the ova to escape is productive of sterility though under such circumstances the Fallopian tubes will likely be blocked. Ovarian abscess destroys the ovary to so great an extent that its function of producing ova is generally abrogated although its function in relation to menstruation may be retained prior to its oblation.

Pelvic peritonitis practically always leaves permanent damage. If the tubes or ovaries are involved the results may be similar to those mentioned above. In addition pelvic and lower abdominal adhesions persist and may be a source of further trouble not only in regard to the functions of the pelvic viscera but to the function of the bowel as well.

Although many variations are manifested in the course and progress of acute pelvic inflammation, the average duration of the acute stage in a case of moderate severity is about three weeks. The onset is more or less abrupt and the disease reaches its summit within the first three or four days. Following this there is a period of one to two weeks with but little change and after that there is a gradual decline until about the end of three weeks conditions may appear fairly normal except for the presence of the inflammatory mass. It seldom happens however that the patient follows the normal line in respect of temperature and pulse when it is first reached. There generally follows a subacute stage in which exacerbations are common. During this stage resolution is progressing.

At the end of six weeks the normal line will usually be definitely reached and adhered to except that slight daily variations below and above the line are likely during a further resolving period of six weeks.

About twelve weeks are likely to elapse from the onset of the disease before resolution is complete or has reached a degree of permanent incompleteness. During this time in the absence of added infection the inflammatory product becomes sterile or the organisms are so far reduced in virulence as to be no longer a source of danger to their relatively immunized hostess. In cases of pelvic inflammation which fail to reach the normal line as above described, there is probably added infection as in those cases in which the primary feature has been perforation of an appendix lying in the pelvis with secondary pelvic peritonitis. Fresh infection may be added through the unhealed appendix. Tuberculous inflammation is also more persistent and generally lacks the abrupt onset and stormy symptoms of acute pelvic inflammation.

Generally speaking it would appear that incompleteness of resolution carries with it a predisposition to aggravation, and unless radically relieved chronicity may be established and subacute attacks may be more or less frequent.

Following infection symptoms and signs develop rapidly. There is severe and persistent pain in the pelvis and lower abdomen; nausea and eructations of gas are frequent and vomiting occasional. Chills may occur. The lower part of the abdomen becomes tender and rigid and there may be abdominal distension. The temperature rises, but seldom to more than 102 or 103 degrees, and the pulse rate is increased. If the patient is menstruating the flow of blood is usually increased. If menstruation is recently over there may be some return of bleeding. If ensuing in the latter part of the inter-menstrual interval, menstruation is likely to be precipitated. Vaginal discharge may be a marked feature or may be entirely absent.

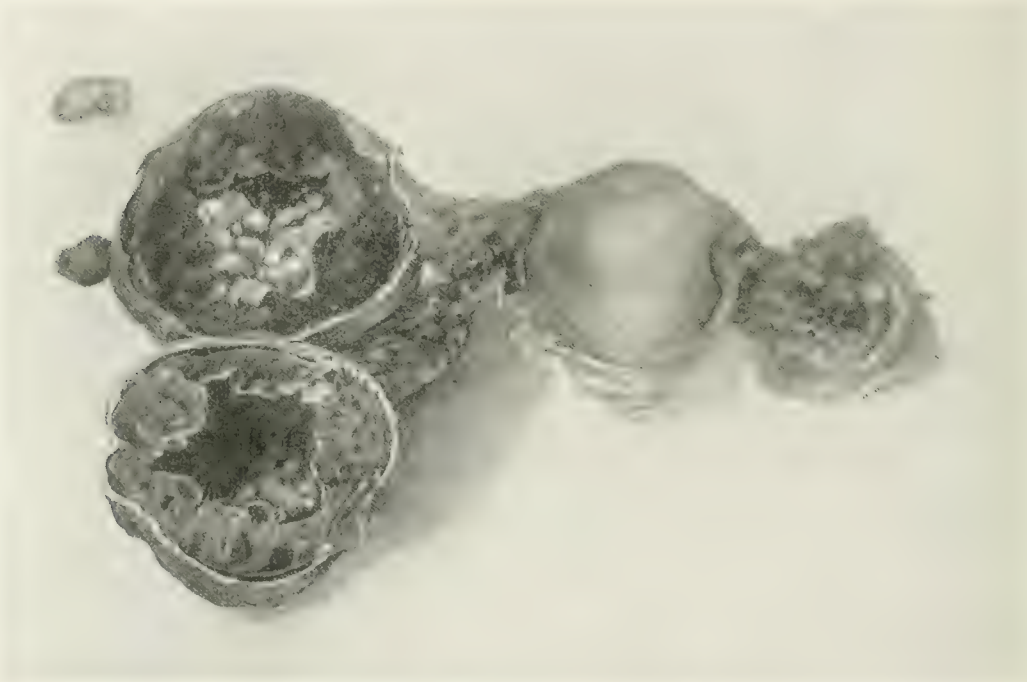
Constipation is common though diarrhœa may be present. Urination may be more frequent and painful. Anorexia, headache, malaise and other evidences of toxicity depend to a great extent upon the degree of inflammation. Cases in which the peritoneum is involved, are likely to present more marked symptoms.

Examination of the abdomen suggests an acute inflammation in the pelvis or lower abdomen and may reveal mass formation arising out of the pelvis. Bimanual examination if it can be made satisfactorily will reveal a mass as described above, except in the very early stages before mass formation has occurred, at which time only marked tenderness and increased density will be found.

By carefully marking out the points of abdominal tenderness and comparing them and considering the onset of the disease and the circumstances attending it, it is usually possible to judge the probability of appendicitis alone or appendix involvement in a pelvic inflammation. Positive findings on bimanual examination will establish the diagnosis of pelvic inflammation but will not exclude appendicitis. Anæsthesia may be necessary to make the bimanual examination

complete and satisfactory. If the vagina does not readily admit the examining finger, rectal bimanual examination will usually suffice, especially under anæsthesia.

Examination of the blood shows a leucocytosis in most cases. A history of recent labour or abortion will usually favour the diagnosis of pelvic inflammation. Careful search should be made for existing gonorrhœal infection and a microscopical examination of such discharges as can be secured from the urethra, vagina and cervix, may give valuable information as to the nature of the infection.



Tubal Pregnancy in which the Ovum has undergone Tuberose Molar Formation. Plastic Peritonitis was so extensive that removal of the Uterus and Adnexa was necessary to clear up the Pelvis. Specimen from the Gynæcological Museum Toronto General Hospital

Every care should be taken to establish the diagnosis and to exclude pelvic conditions other than inflammatory. Differentiation between appendicitis and pelvic inflammation is most important but in the early stages of pelvic inflammation differentiation of its various anatomical types is not so important except from the point of view of later treatment and remote results.

The possibility of septicæmia or thrombo-phlebitis must be kept in mind and care should be taken against regarding the condition as typhoid on account of the frequent similarity of the temperature record.

Other conditions calling for differentiation at times are septic abortion, ectopic gestation, twisted ovarian tumor especially a dermoid, an inflamed fibroid tumor or malignant infiltration of the cellular tissue.

So far as ectopic gestation is concerned it is not likely that much confusion will arise in respect of cases in which more or less sudden rupture has taken place and the general symptoms are those of shock and internal hæmorrhage, but in cases in which slow and possibly incomplete abortion is occurring or has occurred some confusion is likely because of the mass formed by the clotting of blood, exuding from the outer end of the tube and plastic inflammation around it, and frequent rise of temperature and marked abdominal sensitiveness. Under such circumstances a careful investigation of the history, symptoms and findings will usually suffice to arrive at a proper conclusion but occasionally it is advisable to explore the pelvic cavity through the vault of the vagina in order to establish the diagnosis, a procedure which is vastly preferable to risking a mistake in diagnosis and opening the abdomen and finding an early acute pelvic inflammation.

The great majority of cases of pelvic inflammation recover under judicious care and treatment. Some cases are of short duration and recover quickly. Above all it must be remembered that mass formation is a natural result of inflammation and that it indicates a local reaction and an attempt on the part of nature to protect the individual from general peritoneal involvement or systemic infection. Therefore when pelvic infection seems certain to have occurred the presence of a mass should be favorably regarded.

Treatment of pelvic inflammation should be palliative in the acute stage while surgical procedures should be reserved for its later disabling results or for occasional emergencies occurring before the acute stage has passed.

As a general rule the patient's best interests will be served by the avoidance of abdominal operations in the acute stage.

It is rare indeed that a patient's life can be saved by an abdominal operation when there is a rapidly spreading diffuse or general peritonitis the result of pelvic infection, as it is impossible to remove all the infected tissue, and more rapid dissemination of the infection by the operation would be a likely result. Making of small wounds through the abdominal wall for the purpose of inserting drainage tubes, without internal manipulation, is not so objectionable though as a rule but little real benefit accrues from so doing.

If distinct mass formation is felt it is practically certain that the inflammation is localized and one does not hesitate to say that in the vast majority of such cases there is less danger to the patient's life in relying upon and aiding nature's processes than in attempting the early removal of the infected tissues.

Brilliant operations may be performed in the early stages and may succeed but there is too great a risk from dissemination of infection. Besides the patient is generally perfectly safe under palliative treatment and later on when the acute stage is well over, if operation is indicated it can be performed with perfect safety. In most cases from six to twelve weeks will elapse before this period is reached. Operations in the quiescent stage are not only much safer but are usually less destructive and recovery is more complete and permanent.

In the early and indurated stage of cellulitis operative treatment is not applicable in as much as the infected tissue can not be removed. Though resolution is the general rule, suppuration may occur. This is indicated by softening of the mass and elasticity or fluctuation together with marked daily variations of temperature and perhaps chills. At this time drainage may be advantageously established either through the vagina or extraperitoneally above Poupart's ligament. The route chosen should be the one presenting easier access. As most of such cases occur following labour or abortion the height of the mass will largely depend upon the stage at which pregnancy terminated. The more advanced the pregnancy the higher will the mass extend.

Salpingitis and ovaritis rarely produce an emergency demanding pelvic drainage in the acute stage. In pelvic peritonitis marked suppuration may occur early and extension threaten. If the symptoms are aggravated and elasticity or fluctuation can be detected per rectum or vagina, it is logical to establish drainage of the utero-sacral pouch through the vaginal vault and lower pelvic peritoneum behind the cervix. This procedure is usually attended by much relief. Its performance is simple and it does not disturb the defensive line above or tend to disseminate the infection.

The chief object of palliative treatment is to sustain the patient and to assist in the localization of the inflammatory process.

Complete and prolonged rest in bed is most important. Dorsal posture with the head and shoulders moderately raised and the knees supported in a flexed position so that the whole body is somewhat flexed and abdominal strain relieved, is desirable. The sitting posture or a near approach to it is less comfortable and is no more favorable to localization, as the nearer the trunk of the body to the vertical posture the less is the effective capacity of the pelvic basin for containing exudation. The sitting posture favors overflow anteriorly into the abdominal cavity above the pelvic brim, into an area where peristaltic and respiratory movements are greater.

Following the onset the diet should be restricted to fluids and even these should be withheld for twenty-four or thirty-six hours if vomiting occurs and is persistent. Gastric lavage may be employed with benefit to relieve the vomiting. If fluid is urgently required it may be given per rectum or interstitially. Purgatives should not be given until there are distinct evidences of localization. The bowels may be relieved by a small enema given daily or more frequently if there is much abdominal distension.

Pain may be relieved by the application of heat or ice to the abdomen and by judicious administration of sedatives. In the early stage and when the diagnosis is established the use of morphia hypodermically in small doses combined with atropine, and repeated only as pain and restlessness demand it, is more effective and sustaining. Later, in the absence of vomiting, other sedatives may be used.

Hot and copious antiseptic vaginal douches two or three times daily are beneficial.

If the infection is gonorrhœal it is advisable to make applications of silver nitrate solution, 6 to 12%, to the cervix and entire vagina, and argyrol, 10%, to the urethra at least twice a week until the infection is cleared up

When localization is well established the diet should be increased and every possible effort should be made to sustain the patient against a long illness. She should be reassured as to her ultimate recovery and advised that the period of convalescence will be long, also, she should be cautioned against getting up on "good days," as "bad days" which are common enough are likely to follow such action.

The question of possible operation need only be discussed with the patient when it appears likely that such will be quite necessary.

Whenever possible, it is desirable to arrange for hospital treatment or prolonged private nursing.

When the quiescent stage is reached and owing to persistence of the mass with resulting pain, inability to walk or exercise, excessive menstrual disturbance or leucorrhœal discharge, tendency to aggravations or invalidism, or semi-invalidism, it seems desirable to operate, the problem is one in which the indications are fairly clear; yet, although operation at this stage is safe, its performance is sometimes attended by profound difficulties. Fixation by adhesions is often extreme and the separation of adherent bowel requires special care, while over-sewing, repair or even resection of bowel will occasionally be necessary.

Surgical treatment of the uterus tubes and ovaries should have due respect for conservation of function. At the same time establishment of health and permanency of relief must be fairly considered.

The age of the patient and all the attending circumstances may have to be taken into account in determining the exact extent of the operation.

If both tubes and ovaries have to be sacrificed the removal of the uterus is usually desirable as it clears up the pelvis completely and leaves less likelihood of subsequent adhesions, or, of a persistent leucorrhœal discharge. If the cervix is unhealthy a core may be removed from it or a pan hysterectomy may be performed. In younger women it is desirable to allow the menstrual function to continue if such can consistently be done. Healthy ovarian tissue should be conserved. If this can be accomplished it is well to conserve the uterus if its state warrants doing so.

In some cases it may even be found possible to conserve a Fallopian tube as well as ovarian tissue and the uterus.

The practice of conservation or removal should in all cases be tempered with sound judgment.

Reference has already been made to the importance of diagnosing between acute appendicitis and acute pelvic inflammation. The reason is that in acute appendicitis especially in girls and young women early surgical treatment is

most desirable, and can be accomplished with safety. Conditions about the appendix are not so favourable for the localization of the inflammatory process as in the pelvis. While unperforated the appendix may be dealt with as a closed tube without fear of disseminating infection. Perforation of the appendix with secondary involvement of the pelvic viscera is a calamity which should, if possible, be avoided.

If operation is deemed advisable for the relief of a suppurating cellulitis or of a suppurating pelvic peritonitis in the acute stage the patient after due preparation is anæsthetized and placed in the perineal position. Further preparation of the vulva and the skin around it, and the vagina, is performed by the use of iodine, 2½%, or by thorough cleansing with green soap and sterile water, followed by a solution of bichloride of mercury, 1 in 1000, which is afterwards washed out of the vagina with sterile water.

If iodine is used in preparing the vagina for operation care should be taken to see that it is thoroughly applied to all parts of the vagina and cervix. The vaginal folds require firm swabbing to reach all their parts. A slight disadvantage of the iodine preparation as compared with the cleansing preparation is the constricting tendency of the iodine which makes the vagina somewhat less pliable.

When the preparation is complete the posterior lip of the cervix is grasped with a tenaculum forceps and pulled slightly forwards, without attempting to pull the uterus down, a procedure which might be attended by some risk. A single toothed tenaculum forceps is then made to grasp the posterior part of the vaginal vault about one inch behind the cervix and in a transverse direction. Putting tension on both forceps will then produce a ridge of vaginal wall behind the cervix. This ridge is then cut through transversely with scissors and the opening which may be enlarged by cutting or stretching, leads to the cellular tissue between the vault of the vagina and the pelvic peritoneum.

If the abscess is in the cellular tissue the dissection may be carried outwards by the finger until the abscess is reached. When the pus escapes the finger should be carefully manipulated so as to make a free opening and to break down sufficient tissue walls as to leave only a single abscess cavity. A large sized rubber drainage tube with one or two perforations is then inserted into the cavity and fixed in position by a suture attaching it to the posterior boundary of the vaginal orifice. Under no circumstances should an abscess in the pelvic cellular tissue be opened by a direct incision into the mass through the lateral vaginal fornix because of the grave danger of injuring the ureter or uterine artery.

If it is desired to extend the opening into the pelvic cavity and the utero-sacral pouch is distended with pus it is generally an easy matter to do this by pushing a long uterine dressing forceps through the peritoneum in the middle line and stretching the opening with the blades. In doing this the direction of the uterus should be carefully determined and care should be taken to keep close

to the back of the uterus and to avoid injuring the rectum. When opened the cavity should be treated and drained in the same manner as mentioned above.

No attempt should be made to irrigate such an abscess cavity as it is quite unnecessary and might be dangerous. As there is usually but little bleeding during such a procedure it is seldom necessary to use packing along with the drain. On account of the tendency for vaginal drainage openings to become blocked or closed readily it is advisable to leave in the tube for at least a week in order to establish an efficient drainage track.

Drainage in such cases may be somewhat facilitated by the flexed dorsal position but such is by no means essential. The most comfortable position the patient can discover under these circumstances is the best one for her.

If an abscess of the cellular tissue is high enough to point above Poupart's ligament it may be opened extra peritoneally with ease by dissecting through the skin, fat, muscles, and fascia over it direct to the abscess cavity. No difficulty is experienced in keeping outside the peritoneum as this membrane is already displaced upwards by the inflammatory products.

When it has been concluded that radical operation is to be performed for clearing up the results of pelvic inflammation and a satisfactory stage in the disease has been reached so as to allow such a procedure to be undertaken with a minimum amount of risk the choice of route is per abdomen and not per vaginam. In fact the only sane route is the trans abdominal one which allows every stage and movement of the operation to come under the direct vision of the surgeon and which permits of a finished result impossible to attain by attempting to remove inflamed pelvic viscera per vaginam.

Whoever decides to perform an abdominal operation to clean up pelvic inflammation should be prepared for any emergency and should be particularly familiar with the various procedures involved in intestinal surgery. Otherwise he is certain to meet conditions which he will find difficult or even impossible to satisfactorily control. The necessity for repair or even resection of bowel not infrequently complicates an operation more than ordinarily severe even when unattended by any extra procedure demanded by complications.

With the patient in the dorsal position the incision is made in the middle line and as a rule all the available space between the umbilicus and the pubis is required to afford an incision free enough to facilitate the various procedures to be carried out. An ample incision is essential, and if necessary for good exposure and unhampered manipulation it should be enlarged upwards on one or other side of the umbilicus.

As to position it is usual to begin with the patient in the Trendelenburg position though if the masses extend above the pelvis it is wise to retain the flat dorsal position until sufficient gauze packs are placed so as to prevent any soiling of the general abdominal cavity.

The use of a self retaining abdomino-pelvic retractor is helpful particularly when only one assistant is available. A Wade Doyen curved Abdominal retractor

pulling across the pubis at the lower end of the wound and intelligently held affords a somewhat better exposure of the pelvic viscera and slightly easier access to them.

Gauze strips used to pack away the intestines from the field of operation and to prevent soiling of the abdominal cavity should be from six to ten inches wide and at least six layers thick and a yard long. Small, thin, narrow strips such as may be used in operations for appendicitis are an abomination in abdominopelvic surgery. Before using gauze packs they should preferably be moistened and warmed. An adequate and carefully counted supply of gauze sponges should always be on hand.

When operating elsewhere than in a well conducted hospital the surgeon will minimize his responsibility for gauze strips and sponges by using only one or two thick and wide five-yard strips for packs and for sponging.

After opening the abdomen the general situation should be surveyed in order to determine the course of procedure. Frequently it will be necessary to separate adhesed omentum or even bowel from the abdominal wall before a proper view can be obtained. As the appendix is frequently in trouble or actually involved it is well to examine the ileo-cæcal region early. If not involved in the pelvic mass and the removal of the appendix is indicated it should be removed first and the terminal ileum and the cæcum should be released from any adhesions in order that this area may be disposed of and protected with packs before proceeding further into the pelvis. If involved in the pelvic mass its removal is accomplished after its release and when the general situation is under control. It might be remarked here that in pelvic operations if the appendix is to be treated fairly it should be examined on the way in, because if left to be examined on the way out after the intestines have been packed away with gauze for some time the normal appendix will in practically all cases appear to be so congested as to make its removal appear to be necessary and not simply a matter of insurance against appendicitis.

As the omentum and intestines are drawn up, first being released as necessary, they are carefully packed away with gauze strips. It is important to get in packing early and plenty of it as one proceeds so as to protect the cavity in the event of pus being encountered in the lines of cleavage or escaping when the inflammatory mass is reached. The greatest possible care must be used in separating adherent bowel and in spite of all precaution it may happen that the bowel may be injured or torn to such an extent as to necessitate repair or even resection. If pus is encountered it should be promptly sponged away.

When the pelvic viscera come into view the uterus and adnexa should be examined and if one side appears to be less involved than the other it is well to release the tube and ovary on that side before attacking the other, because one is more apt to find ovarian tissue that can be conserved on the less involved side and the possibility of conserving healthy ovarian tissue will usually determine whether the uterus is to be removed or not. Besides it is better to finish as much

necessary work as possible before disturbing a mass which may prove to be not only a mass but a mess as well.

The primary consideration in operating is efficiency so that the patient may enjoy a permanent result and consequent good health. Next to this in importance is conservation of function and it requires some experience in the observation of primary and end results of conservative operations, to determine whether an ovary or a portion of an ovary which has been released from an inflammatory mass is worth conserving, or not.

Unless the patient is young and one or other of the ovaries is so healthy as to appear to be perfectly safe to leave, conservation had better give way to radical removal, and if both tubes and ovaries are removed there is little if anything to be gained by leaving the body of the uterus. On the other hand much good may result from its removal for in severe cases its surface is frequently so roughened and hæmorrhagic from broken down adhesions that if left it would likely contract new adhesions with the intestines. A smoother floor can be left by removing such a shaggy uterus. Besides, the uterus in which the infection may remain chronic or latent if conserved and not functionating normally may be the source of persistent vaginal discharge, at least, for a considerable period. If the body of the uterus is removed the lining and gland substance of the cervix can be readily and efficiently removed by taking out a core from the cervix along with the body instead of doing an ordinary supra-vaginal hysterectomy. In this way only the bark of the cervix is left and the procedure is safer and just as efficient as completely removing the uterus and cervix by pan-hysterectomy. It is ordinarily preferable to boring out the core of the cervix with the cautery, as this procedure results in an offensive vaginal discharge until cicatrization is complete. Coring the cervix need not disturb the mesometrial supporting tissue.

In releasing an inflammatory mass involving a tube and ovary the line of cleavage is most readily found by keeping close to the uterus and beginning just behind and below the uterine end of the tube, first effecting its release from the back of the uterus and dissecting downward, outward, and forward, underneath the mass and finally releasing it from the back of the broad ligament and rolling it upward and forward until it is free. Special care must be taken in this dissection to avoid injury to the rectum and if perchance the posterior layer of the care should be taken to avoid injury to the ureter.

Various details of the removal of the adnexa or uterus or both will not be discussed here though a few important points will be noted. Careful and efficient control of bleeding is most essential. During removal forceps are used and afterwards these are replaced by ligatures and sutures. As a general rule if broad ligament adheres to the mass and the interligamentous space is opened up may be said that if pus has been encountered during the operation chromic catgut should be used to ligate the vessels instead of silk which latter may become infected and cause persistent discharging sinuses. In the absence of pus silk ligatures will be readily taken care of without trouble. After ligation of the vessels

is accomplished suturing of the bark of the cervix and the peritoneum over it may be done with plain or iodized catgut. In suturing the bark of the cervix care should be taken that the needle is passed through it low enough to prevent any bleeding from it into the vagina and in sewing the peritoneum over it all raw surfaces should be turned in so as to minimize the possibility of adhesions. If the uterus is not removed an adnexal stump may be covered by suturing a portion of the round ligament over it. Should it seem desirable to raise the cervical stump in the pelvis the round ligaments may be sutured to it. Irregular bleeding points should be controlled by catgut ligatures or sutures.

Bilateral Pyosalpinx, Gonorrhœal in Origin, Removed with the Uterus After Subsidence of Pelvic Peritonitis. Specimen from the Gynæcological Museum Toronto General Hospital

Drainage is unnecessary in the majority of cases in which operation is performed in the quiescent stage following the complete subsidence of an acute attack as in most cases the pelvic cavity can be left completely dry and the patient has been self-immunized against the organisms which themselves are mostly dead or possessed of so little virulence as to no longer endanger their hostess.

If the acute attack has been more recent and especially if there has been a little uncontrollable oozing of blood from surfaces which were adhesed and which cannot be well covered it is safer to establish a possible outlet for drainage. This can be efficiently done by puncturing through the vaginal vault behind the cervix or cervical stump and drawing the end of a gauze strip down through the opening into the vagina and then filling up the utero-sacral pouch with the gauze plaited across from side to side. This is afterwards taken out per vaginam without special difficulty and is usually removed in part on the second or third day and the remainder on the fourth or fifth day.

If the acute attack has been still more recent or is yet in progress as in cases of colon bacillus infection from the appendix drainage becomes a necessity. Vaginal gauze drainage may be used in the manner indicated above but this is not sufficient. A moderate sized, firm, rubber tube may be drawn through the opening in the vaginal vault with the gauze and placed directly behind the uterus or cervical stump and in front of the gauze, its upper end reaching to a point just below the upper limit of the uterus if this has been left or to a somewhat lesser height if the uterus has been removed. Such a procedure is less likely to be needed in cases in which the uterus has been removed. In addition to this, or as a substitute, tube, or tube and gauze drainage per abdomen may be instituted.

When tube drainage is used because of conditions demanding it one should be careful that such drainage is not dispensed with too early or before a satisfactory drainage track is established. Complete removal should seldom be in advance of seven or eight days.

In cases in which the rectum has been unavoidably injured low down in the pelvis and cannot be efficiently repaired thorough drainage should be established. If the uterus has been removed the anterior peritoneal flap may be stitched to the rectum and the posterior pelvic peritoneum across the floor of the pelvis in such a way as to exclude the injured part from the peritoneal cavity. In making use of this procedure the lowest part of the pelvic cavity is packed with gauze which has one end drawn through the vaginal vault and the peritoneal flap is then stitched above it. Should a leak occur from the injured bowel it finds its way into the vagina. The gauze is gradually removed from the second to the fifth or sixth day and should there be a bowel leak, it will usually cease after a few days and the opening will heal without further trouble.

The occasional necessity of vaginal drainage makes it essential that in the preparation of a patient for operation in cases of pelvic inflammation the vagina should always be prepared as well as the abdominal wall.

To conclude the operation the gauze packs are removed and the intestines with the omentum in front of them are allowed to come down or are drawn down with a gauze sponge and the wound is closed by one of the various layer methods of suturing the abdominal wall.

Mortality following operations for pelvic inflammation should be practically nil if nature's processes are duly recognized and respected and if the surgeon is well trained and capable of meeting any ordinary problem or emergency which may present itself in the field of abdominal and pelvic surgery.

MEDICAL LEGISLATION

Considerable time has elapsed since Mr. Justice Hodgins placed his report in the hands of the Ontario Government. That the Commissioner's findings and suggestions, as evidenced by the voluminous and detailed report submitted, were of a far-reaching character is beyond doubt. But what action was taken by the late Government, and why? What legislation in respect to the matter will be handed down by the new Government? The greater number of issues were shelved by the Hearst administration for reasons best known to the party then in power. Are these reasons known by practioners generally? The influences which were at work during the past session of the House may not be minimized in any sense of the word, with the incoming Parliament. It is very doubtful if the medical profession is fully alive to the situation, which, although Provincial in character is nevertheless of Dominion-wide importance.

If the medical profession is to maintain in this country its high ideals and standards, it must throw off the mantle of indifference towards outside influences by taking a unified, active interest in promoting and fostering throughout the land, the view points which it recognizes. In other words, the profession must see to it that legislators, various organizations and the public generally are given all the facts in the true light as we see them. Only by adopting such a policy can we hope to achieve that which we earnestly desire and which is held to be in the best interests of the citizens of Canada.

PNEUMONIA ACCOMPANYING THE INFLUENZA EPIDEMIC.*

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The high mortality accompanying the recent epidemic of influenza was due not to the disease itself, but to the severe type of pneumonia which accompanied it. The incidence of the latter varied from perhaps 2 to 10% of influenza cases, being highest in concentration camps, and under other conditions accompanied by overcrowding, panic, sleeplessness, fatigue, lack of isolation, and especially failure on the part of the patient to take to bed as soon as the influenza developed and remain there long enough after the active symptoms subsided. These factors no doubt help to account for the greater frequency and higher mortality among the young and vigorous from 20 to 40 years of age, as compared with those at the extremes of life, and in the military, as compared with the civilian population. Overwork and exposure unquestionably were factors in the appalling mortality among doctors and nurses, and no apology is necessary for paying one's tribute of admiration to the quiet heroism and unsparing devotion which inspired their services to the public.

The mortality in cases of pneumonia varied from 30 to 80%, being highest under the conditions before mentioned, and as a rule at the beginning of the epidemic, and apparently higher in the United States than in Canada. The naval station at Chelsea, Mass., near where the epidemic in America began, showed that 10% of the influenza cases developed pneumonia with a mortality of from 60 to 70%. On the other hand, physicians with large practices among the well-to-do classes where the opportunities for treatment were better, and the dangers from infection less, had a much smaller percentage of cases develop pneumonia, and with a comparatively low mortality.

The influence of the influenza epidemic on mortality in Toronto is shown by comparing deaths from all causes in the age group 20 to 39 years—the totals being 824 in 1917, and 2,062 in 1918. Practically all the influenza fatalities, it is agreed, were due to pneumonia. In 1917 the deaths from pneumonia at all ages were 854 out of a total of 5,597 from all causes, or 15.2%, from pneumonia alone. In 1918 there were 2,715 deaths from influenzal and other forms of pneumonia out of a total of 7,639 deaths from all causes, or 35.5% from pneumonia alone.

The experience of insurance companies bears out the great preponderance in mortality among persons from 20 to 40 years of age. In 220 death claims paid by the Imperial Life Assurance Company, the average age of the insured was 32 years. In other words, the highest death rate was among those in the prime of life.

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The high mortality among physicians is shown by the experience of one insurance company of having more than double the number of death claims from doctors in October, 1918, than in the whole of the year 1917. The highest mortality was during the early part of the epidemic. Of the 220 death claims before mentioned, those from physicians were 3 to 7 times greater than from lawyers, clergymen, and teachers.

Though believed to be microbic in origin, as yet there is no general consensus of expert opinion as to the organism responsible for the recent epidemic. The prevailing impression, based on bacteriological reports, appears to be that the influenza bacillus of Pfeiffer plays, if any, a minor role, whereas streptococci and pneumococci are responsible for the serious complications, including pneumonia.

Much discussion has arisen as to the place of origin and mode of distribution of the epidemic. The prefix *Spanish* suggests on insufficient grounds its origin in Spain. As McConnell has pointed out, however, there had been sporadic outbreaks in Europe, the Phillipines, Western America and Cuba for several months before the disease assumed the virulent epidemic form in America in September, 1918, which soon became pandemic. Unquestionably there had been a severer type of pneumonia than usual, some cases presenting the clinical picture that we came to recognize as influenzal pneumonia, prevalent in Toronto during the winter of 1917-18. Three cases of this type I saw in one day with Dr. L. J. Solway, all very much cyanosed and one dying in less than 36 hours. The prevalence of an unusually severe type in 1917 was noticed widely over the continent, and was especially reported by Cole, MacCallum, Tice, Hamburger and Fox and others in connection with epidemics of measles in certain American concentration camps. The streptococcus and pneumococcus were the organisms almost invariably associated with the disease. In the writer's opinion, sufficient importance has not been attached to these epidemic outbreaks of streptococcus pneumonia occurring for a year or more prior to the great epidemic beginning in September, 1918.

During the recent epidemic I saw some 150 cases of pneumonia in private and consultation practice among all classes of the community. The greater frequency and more serious type among the poorer classes, where overcrowding, apprehensiveness, failure to keep in bed, poor nursing, difficulty in isolation, etc., were unavoidable factors, was painfully evident.

Tabulated data were recorded at the time of consultation, and subsequently completed by a questionnaire in 80 of these cases, which are made the basis of this paper. Fifty of the 80, or 62.5%, were males, and 30 or 37.5% were females. The number of cases, of course, is too small to be of much statistical value, but serves to illustrate the outstanding features of the disease.

In ages, 15% were under 20 years, 69% from 20 to 40 years, and 16% above 40 years—thus corresponding to the general experience.

As to anatomical distribution, 26.5% were classed as lobar, 65% as broncho-pneumonia, and in the remaining 8.5% the disease was of the fulminating type, death occurring from toxæmia before definite signs of pulmonary consolidation had developed. No doubt this represents too high a proportion of lobar cases as determined by autopsy, some of the cases classed as lobar being really massive broncho-pneumonia.

The broncho-pneumonia showed itself in three general types: (a) patchy, with little intervening congestion; (b) patchy, with physical signs of much intervening congestion; (c) massive broncho-pneumonia due to coalescence of the patchy areas. The widespread involvement simulated at times a lobar distribution. More or less pleural effusion was common, though at times difficult to diagnose from physical signs alone without puncture, and unless purulent, the presence of a small amount of fluid might be considered merely an incident in the course of the disease without special clinical significance.

About 30% of the cases showed clinical evidence of consolidation at the time of consultation on one side only, and 70% bilateral involvement, usually beginning at the base. Coryza, rhinitis, nasopharyngitis and tonsilitis, were common early symptoms of influenza, but these manifestations, in favorable cases, subsided with the other symptoms in 3 or 4 days, but in severe cases the infection extended to the bronchi and lung parenchyma, either before or a day or more after the subsidence of the influenzal symptoms. Most of my cases showed the first evidence of pneumonia on the third, fourth and fifth days of their illness, and in the fatal cases death occurred most frequently from the sixth to the ninth days. In the 220 insurance previously referred to, death occurred most frequently on the ninth day.

Marked prostration was an early symptom of the severer cases; anorexia, nausea and vomiting were frequent, and 50% of the cases presenting these symptoms died. Severe cough, often spasmodic, was a serious symptom, 55% of the cases dying, as compared with 17% where the cough was moderate.

The sputum was scant and uncolored in 30% of the cases, rusty in 15%, bloody in 37%, and prune juice in 2.5%,—not especially mentioned in the remainder. The mortality was high in proportion to the amount and dark color of the sputum.

Insomnia was a common and at times a very serious symptom, being marked in 55% of the cases, and increased the gravity of the outlook. In some of the worst cases it was most distressing and intractable. Drowsiness and lethargy, on the other hand, were not infrequent symptoms of influenza, some of the cases being persistent and developed the facial paralysis characteristic of encephalitis lethargica.

Cyanosis in all degrees from a light amethyst to purple or almost black, was prominent, and in proportion to its degree, an ominous symptom. It showed itself first in the lips and other terminal circulations and in severe cases was general. It was marked in 44% of my series, and of these 83% died. In the

recovered cases some fullness and purplish-pink color of the lips persisted for a long time. One fulminating case, a vigorous munition worker—39 years of age, had diffuse subcutaneous hæmorrhages widely spread over the body—the black type of the disease—and died in a little over 24 hours from the onset of the illness.

Hæmorrhage from different organs was common—most frequently from the nose or the lungs. The former occurred in about 20% of the cases. Pulmonary hæmorrhage, either during, or at the termination of the pneumonia, occurred, and at times so marked as to cause apprehensiveness of pulmonary tuberculosis; however, all but three cases presenting this symptom recovered. Four out of the 220 deaths in insurance cases were from pulmonary tuberculosis, lighted up by the influenza.

Hæmorrhage from the stomach, the bowels or kidneys occurred occasionally, and most of the female patients had precipitate menstruation during the disease.

In one case there was rupture of the lower part of the right rectus abdominis muscle, with resulting hæmorrhage, producing a large tumor in the abdominal wall, simulating abcess.

Restlessness, severe headache, delirium, and apprehensiveness were common and aggravated the general condition. Dyspnœa was not usually prominent, but when marked was an ominous symptom. Abdominal distension, pain and involuntary movement of the bowels occasionally occurred in serious cases. One case developed definite appendicitis.

The blood pressure was usually low—vaso motor paresis being more evident than definite heart weakness.

In 18% of the cases the temperature rose to 103 degrees or over—the highest temperature recorded being 107 in a case dying on the seventh day. In this whole group 53% recovered and 47% died. In 20 cases—in which the temperature was under 103, 46% recovered, and 54% died. There were several deaths in cases where the temperature ranged from 98 to 100, and several recoveries with a temperature from 105 to 106. A high temperature in itself therefore was not an index to the seriousness of the case.

The pulse as a rule was slow, ranging from 80 to 100, though in many of the fatal cases it rose towards the end. In cases where the pulse at the time of consultation was 120 or over, 42% recovered, and 58% died. Where it rose to 140 or over, nearly all were fatal. It was common to find a pulse from 70 to 90 with a temperature as high as 104 degrees or over. The pulse-temperature ratio therefore resembled that of typhoid fever more than ordinary pneumonia.

The respiration also ranged much lower than in ordinary broncho-pneumonia—24 to 36 and 40 being common, though a marked rise to 50 or over was of serious significance.

Otitis media, sinus and mastoid involvement occurred less frequently than in my experience is usual in influenza.

Marked prostration, cyanosis, dyspnœa, insomnia, restlessness, vomiting, hæmorrhages and collapse, were the symptoms indicative of the seriousness of the infection rather than the range of temperature, pulse, and respiration. In many of the fatal cases the heart sounds were of good quality, the toxemia appararently affecting the vaso-motor apparatus more than the heart.

Of seven cases occurring in pregnant women, all aborted, and three died. In the large majority of cases the pneumonia terminated by lysis.

In the 220 insurance cases it is interesting to note that 15% of the deaths was in *underweights*, and 34% in *overweights*, which goes to confirm a general impression that the latter bore the infection badly.

In the cases which recovered, convalescence was usually slow, loss of weight and a marked degree of weakness remaining for a long time, but eventual recovery was generally without serious impairment. In cases with empyema the length of illness was naturally greatly prolonged.

Among the sequelæ general weakness, neurasthenia, anæmia, peripheral neuritis, myocardial weakness, cardiac arrythmia, post influenzal psychosis, and one case of cerebral thrombosis with hemiplegia were noted.

In connection with the very generally noted relationship of streptococci to influenzal-pneumonia it is important to consider the possible bearing of streptococcus infection of the nasopharynx, tonsils and teeth.

During the past year the writer had routine bacteriological examinations of the tonsils made in the case of office patients generally, and streptococci—hæmolytic, viridans or non-hæmolytic, were found in between 70 and 80%, during the winter and spring. This percentage has been smaller during the summer months. It seems not unreasonable to conclude that persistent foci of streptococcus infection about the teeth and tonsils are a source of danger in causing secondary systemic infections, including pneumonia, in measles, influenza or other acute diseases reducing the local and general resistance. Very important evidence pointing in this direction is contained in the reports from American concentration camps by MacCallum, Hamburger, Fox and others, of the streptococcus pneumonias, pleurisies and septicæmias occurring during 1917 and up to April, 1918. The question of streptococcus carriers is one calling for further investigation to correlate laboratory with clinical findings, not alone among soldiers or other aggregations of the population, but in the community at large. In this connection the fact that extensive oral infection is usually associated with tonsillar and naso-pharyngeal infection is of much practical importance.

In a recent experimental investigation Richey reports the results of the transference of crude naso pharyngeal washings and bronchial secretions from individuals ill with influenza, into the noses and throats of 86 healthy volunteers, 16 of whom, or 18.6%, developed typical tonsilitis. No volunteer receiving *filtered* secretions developed throat trouble. In every case of tonsilitis a hæmolytic streptococcus was the predominating organism. All the cases recovered.

The 220 death claims of the Imperial Life Company represented a gross payment of $508,384 to policyholders from September, 1918, to about April, 1919, and, when it is recollected that the experience of other companies was very similar, the economic importance of the epidemic will be appreciated, and incidentally the value of life insurance to the community.

In the treatment of influenza patients, careful isolation is indicated, and streptococcus carriers should be separated from non-carriers. Discharges should be carefully destroyed. The patient should be kept in bed, even in cases of mild influenza, from the beginning of the attack until at least a week after recovery. In severer cases the time should be longer, and getting up and about should be very gradual. Many cases of pneumonia developed because patients got up and went out a day or so after subsidence of the acute symptoms in mild cases of influenza.

A gown and mask should be worn by the attendant, if proper technique is observed, but if used carelessly they are a source of danger rather than a protection. The avoidance of unnecessary contact and exposure, from the patient's coughing into the attendant's face, are important; also the hands should be carefully washed and disinfected after attendance, and sufficient rest and sleep for nurses, orderlies and other attendants insisted on.

Preventive gargles probably give no protection, and if irritating, are positively harmful. The writer saw one case of pneumonia follow soon after the spraying of the nose and gargling the throat with weak formaldehyde solution.

Abundance of fresh air and sunlight are important, but in influenzal broncho-pneumonia too low a temperature on balconies, or especially before an open window, appeared to be depressing and harmful. The avoidance of apprehensiveness, panic, and other conditions causing nervousness and insomnia, is of great importance.

To control restlessness and insomnia, bromides, codein, and at times, morphia are necessary, though recourse to the latter should if possible be avoided in the presence of pulmonary congestion with cyanosis and dyspnœa. Bromides were found to be the safest and most efficient remedy as a rule.

Marked improvement in the patient's condition was often noted after a good night's rest and sleep. When the stomach is irritable the bromides should be administered per rectum, as digestive disturbance had an unfavorable influence on the course of the disease. Therefore, care in feeding so as to avoid nausea, vomiting, and abdominal distension is important. Where the latter develops it is often better to eliminate food for 24 hours and give salines by rectum.

Sponging, alcohol rubs, changing the patient's position, the use of inhalations as one drachm of Friar's Balsam to a pint of hot water, vaporized in the room, and other nursing comforts should not be overlooked. As there is no specific treatment for the disease one must rely upon general supporting measures and remedies to meet special symptoms. Depressing measures should be carefully avoided.

For the heart weakness, tinct. digitalis, 15 to 30 drops, may be given early four times daily for two or three days if the stomach is tolerant, or until the physiological effect of the drug is obtained, then discontinued, and later resumed as required by signs of cardiac weakness or rapid pulse. The writer could not observe definite benefit from camphor, caffein, strychnia, and other common remedies for this purpose, nor yet from the use of alcohol, though they were commonly used and have the endorsation of good authorities.

Occasional doses of ac. aceto. sal. to relieve pain and restlessness, and ammon. salicyl. gr. 2 and quinine hydrobrom. gr. 5 in capsule, or tinct. quin. ammoniata in half dram does, are safe and apparently helpful remedies.

Alkaline drinks as recommended by Sajous appear rational, in view of the viscosity of the blood and tendency to acid intoxication. Purgation should be avoided, but mild aperients or enemas to produce daily evacuation are indicated.

In the small number of cases in which the serum of convalescent patients was used, no benefit was apparent, and the nervous upset of administration was harmful.

The value of vaccines, either in prophylaxis or as a curative agent, was not apparent, and does not appear to have been established where there were opportunities for carrying out this treatment on a large scale with carefully controlled results. It is difficult to understand the *rationale* of vaccine therapy in a disease the bacteriology of which is still unknown.

In cases of empyema experience accumulated as the epidemic progressed, that early operation was contra-indicated. It was safer to wait until the exudation was definitely purulent and the pulse and temperature were falling, rather than to interfere at the height of the acute symptoms.

Better results also are reported from repeated aspiration through a canula left *in situ*, protected so as to prevent air-infection, than from resection of ribs and free drainage. The latter is a more serious procedure, and offers greater opportunity for infection and pulmonary collapse.

The necessity for care and patience in treatment of post influenzal general and cardiac weakness, nervousness and other sequelæ, is too well known to require emphasis.

[illegible]

THE ROLE OF THE PRENATAL CLINIC*

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The great advances which have been made in recent years in the matter of INFANT CARE have to a great extent left the mother out of consideration, and it is only latterly, and in the large cities on this side of the Atlantic that the view, that the mother has also some claims, has been accepted. We Canadians and Americans, I fear, are rather too prone to feel that we are up to date and advanced in our Public Health management, and although our newer hospitals are equipped for the more or less perfect care of the maternity case, it comes as rather a shock to find that we are really far behind the old lands in the matter of the care of the expectant mother on a large scale. However, if we can only realize the necessity for such prenatal care, our deficiency will no doubt be speedily made good. School children are being subjected to strict medical supervision. The Child Welfare Clinics are gradually reducing infant mortality. But these schemes cannot be completely successful unless the whole period of babyhood, that preceding birth, the antenatal period, as well as that following it, is covered. It so commonly happens that the baby who does not flourish, who dies soon after he is born, received the blow that killed him before his birth. The only way to safeguard him is through his mother, and if the mother is to be helped it is just as much on her baby's account as on her own.

Easy enough as it is to give examples to show that a healthy baby need not of necessity come from a healthy mother, and difficult as it may be to prove that health in the mother is certain to insure health in the baby, yet it is a simple task to produce evidence that conditions which lead to interference with the well being of mothers, that expose them to risk during the period of expectancy and confinement, do interfere with the life and health chances of the baby also.

Recent figures from English cities representing coal-mining, industrial and residential districts show a clear correspondence between the death rate amongst mothers from childbearing, and the stillbirths, per thousand. At the top of the list stands Rochdale with 7 maternal deaths, 56 stillbirths per thousand registered births. At the bottom stands Southampton with 3 maternal deaths, 16

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stillbirths. The obvious conclusion is that where there is a high risk for mothers, there is a high stillbirth rate for babies.

In another set of towns, a comparison is made between the number of deaths of mothers, with the number of babies dying in less than a week after birth. By this it is shown that as matters improve for the mothers, so also do they improve for the babies that are born alive. Dewsbury at the top showed a maternal death rate of 8, and an infant death rate of 41 per thousand. While Hastings at the bottom of the list showed 2 maternal and 19 infantile deaths per thousand. In other words support is given to the view that the same circumstances that make it easy or difficult for the mother to bear her child and live, go to make it possible or impossible for the child that is born alive to retain its hold on life.

Each year an appalling number of lives are lost to the community and to the country from stillbirths alone—for Toronto, 500; for Ontario, 2,500; for Canada about 11,000. If as the foregoing English figures suggest, this can be reduced by diminishing the risk for the mothers, by guarding the pregnant women more watchfully, it is distinctly our duty as obstetricians, to urge the necessity of it upon our Public Health Departments, to force the fact upon our practitioners that there is some slackness in their methods, and to educate women in general to the fact that they are losing babies unnecessarily.

Dr. Clifton Edgar of New York, in an analysis of 500 stillbirths estimated that at least 100 of these babies could have been saved by proper prenatal observation and care of the mothers.

The New York Milk Commission some time ago started the experiment of carrying on prenatal work in connection with the work of the Milk Stations. Comparing the supervised with the unsupervised cases, they found a reduction in the number of Stillbirths of 22 per cent. and a reduction in the number of deaths of infants under one month of 28 per cent. in favor of the supervised cases.

Our own figures are somewhat too meagre as yet to go very much upon, but it is somewhat significant that of the 200 stillbirths occurring at the Toronto General Hospital since 1914, only eight mothers had been attending the prenatal clinic. An analysis of 146 of these stillbirths has lead to the conclusion that at least 25 per cent. of these babies could have been saved had the mothers been more carefully watched during pregnancy. The mothers were going along with such recognizable conditions as toxæmia, syphilis, flat pelvis, etc., and in a number of cases the pregnancy had gone far beyond full term, with resulting dystocia and maltreatment with instruments at labour.

It is impossible in a short paper to cover the deaths of infants in the first week of life, or deaths from prematurity, as well as stillbirths, but if the stillbirth rate can be reduced by greater care of the mother, it is reasonable to suppose that death of the fœtus before the time of viability and deaths of infants shortly after birth can also be prevented to some extent. But it means that

the physician who takes charge of pregnant women in the future must be ready to give more time to his patients, must see her much more frequently than has been the rule.

So much from the standpoint of the baby. What can be said now from the mother's side? As our methods are very similar to those in practice in the United States, it may be assumed that our results on the whole are about the same,—i.e., that at least one woman dies from childbearing for every 260 who give birth to a child. There is room for great improvement here, and the hope for it lies in the fact that in a great many cases the cause or condition which led to the death of the woman could be classed as preventable. Being preventable, it almost follows that, provided that proper means of dealing with them are devised and adopted, many of the risks can be overcome and many lives saved. To preventable conditions also may be attributed much of the suffering, chronic invalidism and sterility dating in large numbers of women from confinement. Preventable conditions include:—

1. *Puerperal Fevers*—That death is the result so frequently in this condition, due to meddlesome curettage, or other intrauterine interference early in the puerperium, is a point which need not be enlarged upon here. But it should be remembered that puerperal fevers, being due to infection, should be regarded as preventable, and capable of control. I am beginning to think that septic infection of the endometrium is one of the rarest conditions with which we meet, but that a great many other conditions are mistaken for it, is an undoubted fact.

2. *Eclampsia*—Frequently and regular urinalysis, and blood pressure records, will discover toxæmia in 80 per cent. of cases. Once discovered no case should become unmanageable. The eclampsia which comes like a bolt from the blue, without signs or warning symptoms, is exceedingly rare. But the days are gone when it was considered sufficient to make a note of the probable date of confinement and to examine the urine once in a while. The physician who will avoid eclampsia in his practice must examine the urine at least every two weeks, must see his patient at least once a month, and must provide himself with a sphygmomanometer.

3. *Unnecessary Operative Procedures*, (exclusive of 2nd stage low forceps). Careful pelvimetry, and the estimation of the relative size of the maternal pelvis and fœtal head, will divide 96 p.c. of all cases well ahead of time, into three classes as to delivery,—(a) normal labour, (b) induction of labour at or before full term, (c) Cæsarean Section. When a physician has estimated as nearly as he can the probable date of confinement, his duties toward his patient are not ended, and he should not make it an unbreakable rule to leave things to nature, and allow his patient to go two, three, or four weeks overtime without following her condition closely for signs of disproportion. He should not forget that there is a large element of chance in the onset of labour. Care and good judgment in apparently normal cases, will prevent the many unnecessary and untimely efforts

at delivery by high forceps, which are attended so very often by bad results to mother and child. Induction of labour by castor oil and quinine, or by pituitary extract, is safe. Induction by bougies or hydrostatic bags is usually sure, and under aseptic conditions, safe.

THE VISITING NURSE

Granted that the scientific guardianship of the expectant mother may be accompanied by better results for mother and child, how can this supervision best be accomplished. The solution of the problem of Prenatal Care is much simpler in large cities and towns than it is in rural districts. The crux of the whole of this part of the Maternity and Child Welfare Scheme is the finding of an opening through which to get and keep in touch with the expectant mother.

In the city this can be done in two ways, (1) through the visiting Public Health Nurse, (2) through the antenatal centre or clinic.

The work to be done lies very largely in the home of the mother; and the person who is in touch with her must be one who has some knowledge of what kind of things in the home are likely to be dangerous, and who is able at the same time to put into operation machinery capable of removing the danger.

One also is wanted who is qualified to advise the woman in a commonsense kind of way on health matters generally, but more particularly on such as affect the health of the expectant mother herself.

The kind of person best suited for this sort of work is someone belonging to the health department of the city, who will be able to detect and get remedied possible sanitary defects in the home. She should also be in touch with all the philanthropic and charitable bodies in the district in order to put necessitous cases in the way of obtaining assistance.

The person pre-eminently qualified for this work is of course the Public Health Nurse. The Health Department of Toronto has a large staff of specially trained nurses whose work carries them into the homes of the poor, bringing them into touch with expectant mothers who do not realize that they need a doctor from the earliest months of pregnancy. Any city which wishes to give prenatal care to its poor will find that the visiting nurse is the first essential. Toronto has the nurses. What we lack is a sufficient number of prenatal centres or clinics.

THE PRENATAL CLINIC

There must be some rendezvous to which the nurse can bring the mothers to see a doctor. We have in Toronto four such clinics in connection with the hospitals, where we need a dozen or more under the control of the Public Health Department. Any city can establish one or two centrally located clinics, with substations in outlying districts where mothers can easily reach them, and it is a simple matter to obtain the services of doctors to attend these clinics on one or two afternoons a week.

These clinics should be to some extent medical institutions, and to a very great extent teaching centres, but they should not be merely examining rooms. They should be open to all classes of patients, to those who can afford their own private doctor, and to those who cannot. In the case of those who have private physicians, a sympathetic co-operation between the private physician and the clinic doctors will be necessary, but will lead to excellent results.

Although this work has not been definitely taken up by the Public Health Department of the city, we have such a clinic in connection with the Burnside Obstetrical Department of the Toronto General Hospital. The doctor in charge is in attendance Tuesday and Friday afternoons, and there is a Social Service nurse present, who does the follow-up work in the homes. Our patients usually come now early in pregnancy, and return at least once a month for observation. At the initial interview with the expectant mother, her past history is gone into, her mode of life discussed, questions of diet, exercise, cleanliness, work, sleep, digestion, etc., are taken up, and she is given a pamphlet dealing with these subjects. Common complaints such as constipation, hæmorrhoids, heartburn, varicose veins, etc., are noted, and dealt with later. The patient is then prepared for examination, when a complete physical, including pelvic, examination is made. Finally blood pressure estimation and urinalysis is done. On her return visits she is usually detained a much shorter time, but time is always taken to answer her questions and listen to her complaints. The chief points noted on these return visits are;—whether the uterus is enlarging normally, whether the child is alive and in normal position, blood pressure and urinalysis.

The medical equipment is not elaborate. The essentials for such a centre are (1) an examining table, (2) a pelvimeter, (3) a blood pressure apparatus, (4) a simple urinalysis set, (5) a stethoscope.

These clinic cases of course only represent a part of the total number of women cared for in the hospital wards. That such supervision as is given them is of value, I think there can be no doubt. For example, during the past year and a half, about twenty cases of beginning toxæmia were discovered and sent into the hospital for treatment. These were just the type of cases which if allowed to go on untreated would get into serious trouble. The result was that no cases of eclampsia developed amongst our supervised cases. All cases of flat or otherwise contracted pelvis were sent into the hospital ahead of time to be under the observation of the chief obstetrician. No cases were allowed to go overtime without being seen very frequently, usually in the ward. In such cases labour was induced when it seemed probable that disproportion between fœtal head and maternal pelvis would result if pregnancy were allowed to proceed further. It must be recorded that to a large extent the remainder of the patients received no attention up till the time they were admitted in labour. It is amongst these of course that the dangerous and hopeless complications of pregnancy are met with. The fact that a very small proportion of the stillbirths —not more than 5 p.c.—occurred amongst supervised cases, speaks well for the efficacy of prenatal care.

MR. CHAIRMAN, these remarks have dealt with the role of the Prenatal Clinic, and I have tried to show that supervision of pregnant women from the earliest months onward is beneficial to mothers and babies. But I have left untouched that very large part of the work which cannot be carried on by such clinics as we can provide in the city—namely, the care of pregnant women in rural districts. Here again I am afraid we are behind the times. I suppose every doctor with a large country practice is faced with this same problem, how to keep in touch with his confinement cases. Possibly some of the gentlemen here this morning will be able to discuss this topic more ably than I can. I see the difficulties—how to get specimens of urine regularly, how to see patients frequently, how in general to make women do as they are told, and how to get help to them in case of danger. But there has never been a difficulty yet that could not be got around, if somebody saw that it would be beneficial to get around it. In Manitoba I believe they have rural nurses. In Nova Scotia they have County Public Health clinics and nurses. It is, I suppose, largely a matter for the Public Health Department to deal with. But each and every doctor who includes obstetrical patients in his practice would do well to remember that by giving his patients better attention than he has ever given them before he can possibly reduce his stillbirth rate by 20 p.c. and his maternal mortality from childbirth to 1 in 500.

INJURIES TO BLOOD VESSELS*

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Lieutenant-Colonel C. A. M. C.

During the past four or five years injuries to blood vessels with the direct or indirect results thereof, have played a large part in Surgery; the result of the war has produced the greatest and most diversified number of cases.

It is not my intention to deal with this subject at any great length, nor to go into minute detail of individual cases, but rather to enumerate briefly some of my experiences of such injuries and to endeavor to extricate out of the multiplicity of the subject a few practical points applicable to civil practice. Before the advent of the Carrel Dakin technique in the treatment of wounds there was a good deal of uncontrollable Sepsis, and in consequence of sloughing, hæmorrhage needing ligature of the main artery in its continuity, was tolerably frequent. As Archibald says the frequency of Secondary Hæmorrhage impressed the Civilian Surgeon. In those sloughing wounds it was often found best to anticipate hæmorrhage by tying the main vessel above the injured parts. My experience has been that secondary hæmorrhage takes place between the 4th and 12th day; often at night, and profuse enough to bring on collapse.

Injuries to blood vessels is a most serious complication and the most common cause of fatality in the treatment of Gunshot Wounds of the Face and Jaws. One of my earliest experiences in the beginning of '15 was with secondary hæmorrhage in the case of Compound Fracture of the Jaw. In such cases one soon learned not to treat with contempt a small external opening leading down to a fracture of the Ramus.

In injuries to the Superior Maxilla and other bones of the upper half of the face the bleeding arises probably from branches of the Internal Maxillary. Bleeding as a result of wounds of the Molar and Bicuspid section of the lower jaw and injury to the floor of the mouth, usually arises from the Lingual Artery or its branches. While injuries in these two regions are common and serious, profuse hæmorrhage is unlikely in large wounds anterior to the bicuspid region.

In cases where there is extensive destruction of hard and soft structures, there is less likelihood of hæmorrhage where these parts are widely open; the openness of the wounds forestalls the spreading of Sepsis.

The cases which presage hæmorrhage are where there is a bilateral fracture of the jaw with small wounds of entrance and exit situated in the posterior half of the lower jaw.

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It is often difficult to decide from which side the bleeding is coming in wounds below and behind the angle of the lower jaw and involving the pharyngeal cavity.

The treatment in these cases comes under three heads, namely: (1) PREVENTATIVE: which includes the prevention or diminution of Sepsis and the application of dental splints and appliances as early as possible as temporary supports. In these cases, by the co-operation of the Dentist and Surgeon the results have been miraculous. (2) IMMEDIATE TREATMENT: the patient sits up in bed and thereby facilitates the work, reduces the blood pressure and prevents blood passing into the throat. The oozing of Arterial blood may be the only indication of a serious hæmorrhage. Gauze soaked in Adrenalin is packed lightly into the parts, and in cases where the lingual vessels and branches are involved, the packing may be held by a specially devised Clamp. This treatment controls the hæmorrhage for the time being. (3) The OPERATIVE TREATMENT involves (1) ligation of the responsible vessel at the bleeding point. (2) Ligation of the vessel proximal to bleeding point. (3) Ligation of the external Carotid Artery.

The old axiom of our student days of tying the bleeding point above and below was sometimes brought vividly to our minds; I have known of cases of secondary hæmorrhage taken to the Operating Theatre, the main vessel above ligated and the patient taken back to the ward only to find that when the blood regained sufficient pressure to loosen the clot another hæmorrhage from the unligated lower end of the injured vessel. While ligation at the bleeding point is the best procedure it is often difficult to find the exact source of the hæmorrhage. Secondary hæmorrhage of an alarming nature frequently takes place in cases of compound fracture of the thigh, especially of the upper third; indeed a fairly large percentage of the deaths in these cases was from this source.

The patient should be anæsthetized and every effort made to secure the vessel at the point where it is injured. The wound must be enlarged, the edges well retracted, and the clots cleared out. But very often after a painstaking search the injured vessel cannot be found.

In the early days of the War, before the Carrel-Dakin treatment was brought forcibly to our knowledge, the treatment of Bacterial Infections of projectile wounds was carried out by the method advocated by Teishman and Wright of applying to the wound a hypertonic solution of salt to promote the outflow of lymph.

Now in these cases of uncontrollable oozing you will find of practical use the application of this principle. Salt packs are made of several layers of gauze bandage made into bags of different widths into which salt is placed; the tail ends of the bandage are left long and allowed to protrude from the surface of the wound. The packs are sterilized and the wound is packed thoroughly under an anæsthetic. They are allowed to remain in situ as long as a week or ten days if necessary. A profuse discharge takes place from the wound. Contrary to

expectation the temperature and pulse abate, and when the somewhat offensive packs are removed, the discharge washed away, the wound has a healthy granulating appearance.

You may, like myself, think this a somewhat crude method of treatment; but in cases of accident with uncontrollable bleeding you may some day find it helpful in the treatment of these worrying cases.

Spinal Hæmorrhage may be produced by direct or indirect violence. The hæmorrhage may be extradural or hæmorrhage into the Spinal theca may occur; but *cases of haemorrhage without other spinal lesions are rare.* The treatment forms part of the treatment for the relief of the pressure from other causes. It is more than doubtful that hæmorrhage into the spinal theca will recover spontaneously, and such cases should be submitted to exploration.

Penetrating Wounds of the Chest usually produce subcutaneous Emphysema, Hæmothorax, Pneumothorax, laceration of the lung, either singly or in combination. The Hæmothorax and Pneumothorax may be on the side opposite to the wound of entry. Bilateral Hæmothorax may sometimes result from a single wound and may be associated with Hæmopericardium. *Hæmothorax is the most common result of a chest wound.*

Infection of a Hæmothorax is much more frequently derived from the skin and clothing than directly from the lung.

Contrary to what we would expect, death from Hæmothorax as a result of a wound of the chest is very rare. *Secondary hæmorrhage* is also rare. Cases which survive the first few days after the wound, and where death results, the most usual cause is Septic Infection.

In Hæmothorax there is marked collapse of the lower lobe of the lung—more so than in pleural effusions.

The bloody fluid in these cases of Hæmothorax is defibrinated; experiments by Elliott and Henry have shown that it is devoid of fibrinogen, and therefore does not undergo massive clotting when removed from the chest cavity.

In a small number of cases defibrination does not occur; soft jelly-like clots form, and paracentesis becomes difficult owing to the blocking of the needle.

As a result of the blood in the pleural cavity there appears to be some pleural exudate, because even when there are 4 or 5 pints of fluid in the chest, the patient does not show any obvious signs of loss of blood.

Massive clotting seems to be more common in infected cases.

In sterile casces secondary hæmorrhage or sudden copious effusion is uncommon; but in the infected cases there is a rapid increase in exudate and often a very rapid development of gas, from the presence of Anærobic gas producing organisms.

What is the source of haemorrhage in these cases of Haemothoraæ? The answer is not as easy as one would imagine. Does it come from the chest wall or from the lung? One cannot exclude the possibility of a wound of the intercostal vessel; on the other hand extravasated blood is found in the track pro-

duced by the foreign body in its passage through the lung. Penetrating wounds of the lower chest wall have been seen where no Hæmothorax existed. The absence of Secondary hæmorrages in these cases rather favors the Pulmonary vessels as the origin of the bleeding.

A practical point. Infected Hæmothorax creates a more abundant and thicker deposit on the collapsed lung; and this hampers the re-expansion of the lung after draining the pleura. It is most important therefore to drain the pleura at the earliest possible moment in the infected cases.

The physical signs of Hæmothorax are very varied and much more complex than those of simple pleural effusion and numerous cases have been erroneously diagnosed as traumatic pneumonia. One point of practical importance to remember is that *the Dullness on the affected side is much higher than normal* —This can be demonstrated both by percussion and X-Ray examination.

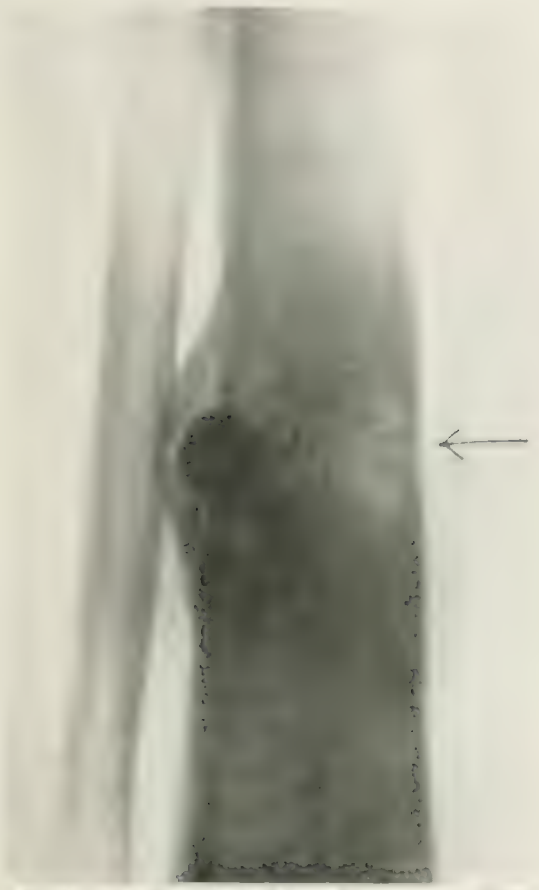
The treatment of Hæmothorax resolves itself into whether the contents of the pleural cavity are sterile or not, and in the quantity of effusion. In a word, if sterile and small in quantity, active treatment is not required. If larger in amount and reaching above the angle of the Scapula, it should be removed by aspiration and preferably in combination with Oxygen replacement. In infected cases free drainage should be resorted to as early as possible and in selecting the site for excision of rib remember the fact previously mentioned that the Diaphragm is abnormally high. Successful cases of the application of the Carrel-Dakin technique and subsequent closing of the wound by secondary suture have been recorded.

Hæmothorax After Drainage

SIMULTANEOUS LIGATURE OF THE ARTERIAL AND VENOUS TRUNKS IN WAR SURGERY.

The experience gained in War Surgery has changed our attitude as regards the ligature at one and the same time of the main artery and vein of a limb. The first case of this sort which came under my notice was one in which there was a

large ragged wound on the inner and posterior part of the thigh; a fairly large piece of shrapnel was embedded in the vicinity of the superficial Femoral vessels. There was absence of Tibial pulsation. The artery and vein were so torn by the F. B. that there was only one thing to do, namely, the ligature of both vessels. It was felt at the time that amputation would have to be resorted to, and only his weakened condition prevented us from removing the limb forthwith. But the unexpected happened; the limb survived.



In many cases of compound fracture of Tibia both Peroneal and posterior Tibial vessels were ligatured and the result was good. In wounds of the Popliteal space where both vessels were so lacerated that suture was impossible, and one had to be content with ligating above and below, the ultimate condition of the foot and leg good no cause for anxiety.

The Surgical Literature of that time (1915) was not of an assuring nature. One read that "if the vein is wounded as well as the artery the danger of gangrene is greater," and again in reference to the ligature of the Popliteal artery, "It would be well, if possible, to get leave for immediate amputation if the vein was injured also, and beyond remedy by suture." Referring to Aneurysmal Varix one Surgical writer of note says "great care should be taken not to injure the vein, as otherwise gangrene will result." Sir G. H. Makins, who has devoted much time to the subject of injuries to blood vessels and to whose work reference will be made later, has expressed the modern views on this subject in two sentences, namely—(1) "The Elimination in part of the capacious main vein is a real advantage since this for the time affords a too ready channel of exit for the diminished arterial supply." (2) "The result of the combined procedure being to maintain within the limb for a longer period the smaller amount of blood supplied by the Collateral arterial circulation and hence to improve the conditions necessary for the preservation of the vitality of the limb."

Aneurysm is one of the most serious sequelæ of injuries to blood vessels. The chief types are—(1) Traumatic or false aneurysm, (2) Varicose aneurysm

ANEURYSM.

and (3) Aneurysmal Varix. The traumatic variety was found in all types of wounds. The size of the artery has little effect on the size of the aneurysm; the regions of the body or the resistance offered by the fascial planes, or cellular tissue, are most important.

For some time the aneurysm definitely increases. The onset, or at least the time of the first observation may be delayed for some time after the wounding. This is particularly the case where the patient has been literally peppered, and it is well seen in the X-Ray of this case. This case was a somewhat unique one in that he developed a traumatic aneurysm in both Brachial arteries about the same time. I do not wish to weary you with case reports, but I would like to submit very briefly the records of this case of Bilateral Aneurysm of the Brachial Artery.

ANEURYSM OF BRACHIAL—BILATERAL.

22661. Gun. A.P. R.F.A. Age 22. Wounded by Shell on Nov. 4th, 1916.

Description of wounds on admission.

Leg (Rt.) Large thro' and thro' wound—upper 1-3rd.
Compound Fracture Fibula and Tibia involving knee joint.
Knee Jt. (Rt.) Swollen and tender.
Thigh (left) Several wounds and several F. Bs. present.
Arms (Rt.) Marked Ecchymosis along inner and anterior surface.
(Left) Slight Ecchymosis with marked peppering of arm and forearm, like a case of purpura.

Progress of case.

Right leg and knee joint gave most trouble. Contents of knee-joint (Rt.) obtained by needling showed the presence of both Staphylococci and Streptococci. Ether and Formalin injected. Subsequently joint opened. Knee did not respond to treatment and *amputation thro' thigh was done* 1/12/16.

On 25/11/16—*Three weeks after being wounded*, a small pulsating swelling appeared in lower 1/3rd of right arm in the line of the Brachial Artery. There was a well-marked systolic murmur over the swelling; both pulsation and murmur were controlled by pressure of the artery above. There was a comparative diminution in the tension and volume of the right radial pulse, but not very marked.

The swelling increased gradually and became painful.

On 4/12/16—*Ten days after the swelling was first observed* operation was performed by the intra-saccular route. The pulse was not palpable before leaving the operating room. The sac was filled with fluid blood; a thin layer of organized clot forming the lining. The opening itself was oval in shape involving the anterior wall and running in the long axis of the vessel.

On 10.12.16—*Five weeks after being wounded*, a swelling appeared in the left arm about 1 inch below tendon of P. Major in the line of the Brachial Artery. The swelling had the same characteristics as the aneurysm of the corresponding artery of the opposite side. It gradually enlarged and became painful. It was submitted to operation in the same manner as the corresponding arm.

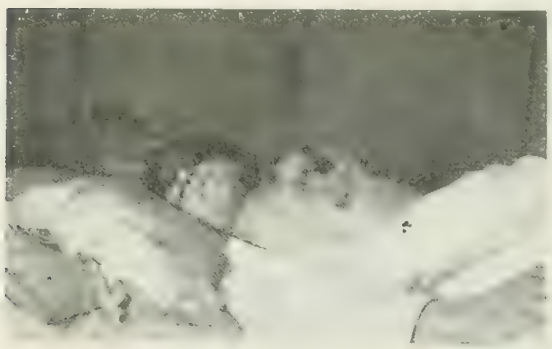
It is worthy of note that after the second operation there could be felt before leaving the operating room a faint flicker of a radial pulse. The longer interval had apparently been of service in establishing the collateral circulation.

The X-Rays show numerous tiny pieces of shrapnel throughout the extremities of the patient.*

Compound Comminuted Fracture of Humerus. Shrapnel Above at Axilla. Haemorrhage Severe. Ligation Ax. Artery.

Artero Venous Aneurysm has been recognized for a very long period of time, but unless during warfare it is not given to every Surgeon to see many cases; here there is an abnormal communication between an artery and a vein.

Of the variety of Arterio Venous Aneurysm, known as Varicose Aneurysm, Syme of Edinburgh in 1831 recorded a remarkable example, in which an aneurysm of the Aorta communicated with the Vena Cava. The bend of the arm has been the usual seat of this type of Aneurysm. The other variety of Arterio Venous Aneurysm, namely, *Aneurysmal Varix*, was first described by Dr. Hunter in 1756. It is commonly seen at the bend of the elbow where the Median-basilic vein lies over the Brachial Artery. It has also been observed in the Femoral, Popliteal, Carotid, Subclavian and other vessels. It is generally more inconvenient than dangerous; when it occurs in the vessels of the neck the peculiar thrilling sound, like the purring of a cat, or the prolonged articulation of the letter R (bruit de rape), heard on auscultation is conducted to the ear of the patient and is a source of annoyance. In a case of Aneurysmal Varix of the Popliteals, the patient referred to the "music in his leg".



G. S. W. Shoulder: Complete Division of Subclavian. Amputation at Shoulder; Tetanus, Recovery

The intense vibratory thrill and loud murmur heard on auscultation in these cases of Arteric Venous Aneurysm serves to differentiate them from simple Aneurysm; the murmur on analysis shows a continuous hum conducted proximally, and a Systolic Arterial murmur conducted in a distal direction.

It is well to remember that cases are found where the thrill and bruit are present, but on dissection no opening between the vessels can be found; such a case of a lesion, simulating Aneurysmal Varix, has recently been reported by Dr. Armstrong of Montreal. Here the symptoms of an Aneurysmal Varix were clearly due to a close adhesion of the artery and vein by scar tissue.

One cannot expect a natural cure in any case of Traumatic Aneurysm, hence operation is to be recommended. While cases of Aneurysmal Varix undergo spontaneous cure—an example of this condition occurred in Scarpa's triangle in a case of multiple wounds of left leg and compound fracture of Femur of the opposite leg, and had entirely disappeared in three months—those of Varicose Aneurysm should be dealt with in the same manner as Traumatic Aneurysm.

Considerable attention has been given to the surgery of the vascular system owing to the work of Carrel, Halstead, Matas, Bernheim, Crile and others; such work can no doubt be extensively employed—but experiences of the war have shown that only in a small number of cases can suturing and anastomosis be carried out; that in the majority of cases ligature is the most suitable, and can be relied upon to give a successful result if carried out by the intra-saccular route.

One cannot leave the subject without a word about the interesting work of Sir G. H. Makins on the *effects upon the heart and general circulation which follow wounds of the blood vessels*, and on the variations of the local physical signs present at the site of the injuries.

He has shown that there is an apparent enlargement and overaction of the heart accompanying wounds of blood vessels, apart from the amount due to previous capacious external hæmorrhage, and the presence of a large quantity of extravascated blood or blood clot lying free in the tissues. The disturbance of the circulation is still more serious in Arterio-Venous communications.

Another interesting phenomena first pointed out by Makins is the frequent transmission of the *local aneurysmal* bruit to the heart, and in consequence *Cardiac Murmurs accompanying wounds of certain of the blood vessels.*

That an incomplete obstruction to the arterial lumen can give rise to a murmur audible in the heart has been shown experimentally by the use of Tuffiers tubes introduced between the severed ends of the vessel. They are used to give longer time for collateral circulation to take place. They are left in situ 4 days; then the wound is opened up, the ends of the vessels tied and the wound restitched. It was found that a Systolic bruit was heard at the apex of the heart after the tube was introduced and that it disappeared on its removal.

In the severer cases of injuries to blood vessels as we have seen, *Haemorrhage results.* Shock follows or accompanies the bleeding when large masses of muscles are cut; shock is a frequent result of compound fractures and multiple wounds.

During the past five years a great deal of experimental work has been done on the subject of Surgical shock and the transfusion of blood and various artificial solutions. Arguing that donors of blood are not always available, and the difficulty of preserving blood or suspensions of corpuscles in sufficient quantity, Bayliss has advocated a Colloid, such as Gum, as a substitute for whole blood. He points out that blood has not shown itself experimentally to be so far superior to certain artificial solutions as would have been expected. Injections of blood or other substitutes are not used solely to raise the blood pressure, but to increase the blood supply and Oxygen supply to the tissues without decreasing the peripheral flow and therefore the use of vaso-constrictor drugs is to be deprecated. To raise peripheral blood pressure, as Archibald & McLean point out, accomplishes nothing save a mechanical effort.

Another experimental fact brought forward by Bayliss is that a dilute blood under a high pressure is more effective than a normal blood under a low pressure.

The success of the use of gum recorded by Fraser, Connell, Drummond and Taylor in severe abdominal hæmorrhage and in cases of severe fall of blood pressure following operation, would indicate that this form of intravenous injection is of service. When very severe hæmorrhage has occurred blood transfusion is to be preferred.

With regard to the principles of the transfusion of blood; the idea of taking

blood from a healthy and transfusing it to a sick person has been known for a very long time, but owing to the difficulties the operation presented and the occasional dangerous reactions, progress in its use was not made. The war is *responsible for the revived enthusiasm of whole blood transfusion.* In the past we have restricted our efforts to the control of the bleeding points and the injection of normal salt solution; obviously the ideal therapeutic measure is the replacement of the lost blood.

The Physiologist tells us that solutions of salts in cases of hæmorrhage and wound shock are merely of temporary value and are apt to be followed by a greater fall of blood pressure; so also we must remember that the average existence of transfused cells in the circulation of the recipient is only about 10 days and that in cases of anæmia whole blood could do no permanent good unless the formation of blood was stimulated, or the destruction of blood diminished in the patient's body.

There are two dangers of transfusion:

(1) Transmission of some infectious disease.

(2) Transmission of a blood of unsuitable biological characters. The first of these dangers is avoided by careful clinical examination of the donor, Syphilis being excluded by the Wasserman test; the second by making homolysis and agglutination tests. In busy times these tests could not be carried out. The advantage of the indirect method of transfusion is shown by waiting a minute after the injection of the first ounce of blood. If symptoms of incompatibility do not take place the transfusion may proceed in safety. Some of the signs of incompatibility include pain in the lumbar region, Apnœa, Urticaria (especially of face, chest and abdomen) vomiting and purging, symptoms of shock, (dilation of pupils, sweating, restlessness), and later Jaundice and Hæmaturia.

Many methods of blood transfusion have been employed. There is the *direct method* of anastomosing the vessels by means of a Cannula, as advocated by Tuffier prior to the war; and anastomosis without a Cannula as practised by Hull. The disadvantages are the necessity *of dividing one of the chief arteries,* and the difficulty of *registering the amount* of blood transfused.

Of the *indirect methods* one of the simplest is the transferring of blood by means of a *syringe* from the vein of the donor to the vein of the patient. This method was advocated in a series of cases reported from France in the early days of the war by Bruce Robertson, and in a report of cases from Salonica by Primrose and Ryerson. It is worthy of note that these early cases of transfusion of blood during the present war were reported by Canadians.

Unger's 2-way stopcock apparatus answers the purpose well; and also Caird's.

Then again there are the *paraffin coated tubes* first described by Brown and modified by Percy of Chicago and by Kimpton, Vincent and Cabot of Boston. The indirect method of employing a glass receiver and sufficient sodium citrate to prevent coagulation of the transfused blood likewise gives good results.

The X Ray examinations and reports of the various cases mentioned in this paper are the work of Major J. D. Morgan and Capt. McIntosh, both of the C.A.M.C. and I am indebted to them for the excellent reprints.

STRICTURE OF THE URETER*

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Stricture of the ureter is a disease far more common, and of vastly greater importance than the literature has led us to believe, and if allowed to go uninterrupted will, sooner or later, produce serious sequelæ. It has only been within recent years that the finer points in the technique of renal and ureteral diagnosis have been sufficiently perfected to render the findings of a pathological condition such as this reliable. In considering this subject we must clearly differentiate between an obstruction of the ureter and true stricture. As pointed out by Kelly[1], obstruction is the generic term for any hindrance to the downflow of urine, while stricture is specific in its designation, being limited to the narrowings of the ureteral lumen, due to intrinsic inflammatory changes in the ureteral wall.

Strictures of the ureter have been broadly classified under two heads, viz., Congenital and Acquired. While the frequency and importance of the congenital origin of ureteral strictures are somewhat discounted by many writers, they must not be understood as discrediting their existence, which is established beyond a doubt. Congenital ureteral strictures are very real and very disastrous in many instances, as is made evident in a most instructive study of 56 cases by Bottomley[2]. To claim, however, as do Bottomley and Eisdenrath[3] that they are more common than the acquired forms or that the latter are in most instances essentially congenital in origin is, we are convinced, a mistake, except that certain types of stenosis manifest themselves first, as would be supposed, at the points of anatomic narrowings in the ureter.

Acquired strictures of the ureter may be classified into those due to, (1) Trauma resulting from gunshot and stab wounds, post-operative conditions, labour and passage of calculi. (2) Inflammatory strictures, the result of infection. These inflammatory strictures may be classified into, (a) those that are the result of direct extension from periureteral infections, (b) those in which the infection has either ascended along the mucosa from the bladder or has descended from the kidney, and (c) those resulting from focal infections. Strictures due to tuberculous will not be considered in this discussion.

Gunshot and stab injuries are rare. Morris[4] in 1901 collected reports of five such injuries. No doubt the number will be greatly increased as a result of the late war.

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*Read before the Surgical Section of the Ontario Medical Association, Toronto, June, 1919.

Kelly and Burman[5], speaking of traumatic stricture, state that "Traumatic stricture of the vesical end of the ureter following the injuries of labour and surgical operations, especially the Wertheim operation for cancer of the cervix uteri, is quite common. As a rule the trauma has so interfered with the blood supply of the ureter that there are lateral necroses, a continuous leakage of the urine, and uretero vaginal fistula. The spontaneous healing of such a fistula almost invariably means stricture." Traumatic stricture may also be secondary to traumatism from a stone that has been removed or passed.

As traumatic strictures are rendered liable from the close relation of the lower end of the ureter to the broad ligament, it is only natural to suspect that infection in this locality would frequently give rise to ureteral stricture by direct extension, in the female. In a similar way infection of the seminal vesicle would give rise to ureteritis and stricture in the male.

While it is obviously possible for infections to travel by mucosa from the bladder to ureter or, as Eisendrath and Schultz[6] have shown by the interstitial lymphatics of the ureter, it is probable that the hæmatogenous is by far the most frequent mode of transit, and that the usual source is far more distant than the bladder.

Hunner[7] in his excellent report of "One Hundred Cases of Ureteral Stricture," believes that focal infections play an important role in the etiology of ureteral strictures. He states that he is firmly convinced that "The majority of ureteral strictures, excluding those of tuberculous origin, should be classified as simple chronic strictures, and that they have their origin in an infection carried to the walls of the ureter from some distant focus such as diseased tonsils, sinuses, teeth or gastro-intestinal tract." It is apparently a far cry from the tonsil to the ureter, but under the leadership of Rosenow, whether we follow him all the way or not, we are coming to learn something of the strange selective affinity of bacteria. This view of the origin of ureteral infections and ureteral stricture naturally serves to dim the importance of congenital influences in their production. Many cases that have been considered as merely developmental anomalies are now viewed as due to infection and their sequences.

Frequency—The relative frequency of ureteral stricture can be fairly well estimated from the reports of Hunner. Up to Nov. 1st, 1915, he had records of fifty cases. In the same period he had records of forty-nine cases of tuberculosis of the urinary tract and thirty-nine cases of stone in the ureter. In the eighteen months following the above date he had seen more than one hundred additional cases.

Location—Strictures of the ureter may be unilateral or bilateral, single or multiple. The most frequent location is in the broad ligament region within about 6 cm. of the bladder. The next most frequent location is at the bifurcation of the internal iliac vessels just below the brim of the pelvis, about 8-10 cm. above the bladder. In both of these regions there is a group of lymphatic glands. Occasionally a stricture is located in the ureter near the kidney.

Fig. 1

To illustrate [illegible] mencing hydro-nephrosis due to ureteral "kink." X-Ray Catheter obstructed in a kink. Note the dilitation below the kink, showing that the real cause of obstruction is lower. The symptoms in these cases clear up after thorough dilitation of the strictures and establishment of free urinary drainage. Fixation of the kidney without dilating the stricture is followed by further symptoms.

Morbid Anatomy—The inflammatory area varies from a slight annular thickening in the ureteral wall to a condition of diffuse cartilage-like thickening which may occupy several centimeters of ureter and form a mass a centimeter in diameter. Multiple annular strictures are not uncommon. Peri-ureteritis may be present. The microscopic picture is one of chronic inflammation of all the coats of the ureteral wall.

Effects of Ureteral Stricture on the Upper Urinary Tract—Whatever theory we accept for the causation of ureteral stricture, whether we agree with Hunner, who believes that the usual sequence is focal infection settling in the ureteral wall, stricture formation, stenosis and secondary infection of the urine; or with Furniss[8], who thinks that infiltration in the ureter is the result of an acute hæmatogenous infection of the kidney, which often persists as a pyelitis, ureteritis or secondary cystitis, the fact remains that, where ureteral stricture exists sooner or later infection obtains in the ureter and kidneys, and to quote Braasch[9]: "Any considerable degree of infection involving the renal pelvis and ureter will be followed by dilatation. This dilatation is not caused by mechanical obstruction but is the result of changes in the tissues and consequent retraction of the walls of the pelvis and ureter. The dilatation may vary from a scarcely recognizable irregularity of the calyces or ureter to complete destruction of the pelvis." It would appear then, that stricture of the ureter is a condition of primary importance, which, if allowed to go untreated, will in due time give rise to a gradual dilatation of the ureter and kidney pelvis, with the inevitable production of pyonephrosis and destruction of the kidney.

Symptoms—Pain is the most universal symptom of ureteral stricture and only in rare cases is it absent. Its most frequent location is in the region where ureteral inflammation is most frequent, in other words in the broad ligament region deep in the pelvis. From this centre of inflammatory discomfort in the pelvis the pain may radiate in any direction, upward toward the kidney, laterally into the hips or groin region, posteriorly simulating a sacro-iliac joint condition or a sciatica, and downwards into the thigh and leg either anteriorly or posteriorly. Next in frequency to local ureteral pain is pain in the kidney region. This is probably at times a referred pain from the inflammatory area in the ureter, but it is usually due to over distension of the pelvis of the kidney. Frequently we get the history that the patient suffered at first with a more or less constant pain low in the abdomen, and later developed intermittent attacks of pain in the kidney region. If the patient is a female, we may get the history of these intermittent attacks of kidney pain coming on only at the menstrual period, or on getting wet or on having some unusual exposure, conditions that would favor the closure by swelling of the already narrowed area in the ureter. Later the pain in the upper flank or lumbar region may occur at frequent intervals or become as constant as the ureteral pain. Actual pain in the bladder occurs only in exceptional cases, and then is probably a referred pain from the kidney or ureter. Discomfort in the bladder and frequency of voiding are not at all uncommon in the intermittent renal attack and may be present in patients complaining only of ureteral pain.

FIG. II

Illustrating stricture of the ureter near the bladder with dilitation of the entire ureter above.

Urine Examination—The urine may be quite negative on repeated careful centrifuging and microscopic search. If there is infection and ureteritis and pyelitis, the urine shows the pathological features common to that condition. If the urine is not infected, we may still find a few leucocytes or red blood corpuscles or both. These may come from an ulcer at the site of stricture or from the kidney pelvis following one of the acute attacks when they probably result from trauma.

Fever—Chills and fever are common in the cases with urinary infection. A patient with an infection may go for weeks or months without chills or fever and, indeed, may be in apparently perfect health, provided the stricture is open and drainage is good, but should there occur any condition that causes the stricture to close, the patient will develop fever (often with chills), pain and general prostration, such as are usually seen in acute pyelitis.

Gastro-Intestinal Symptoms are common. They are probably of two-fold origin, arising either as a central nervous system reflex or as a result of toxic absorption. The symptoms vary from a slight nausea or aversion to food to the most extreme nausea and vomiting. Gaseous distension is frequent and rectal tenesmus, and desire to stool occasional. Pain just before or during stool is present in some cases and is probably due to the passage of fæcal matter over the sensitive peritoneum at the site of ureteral inflammation. Colitis may occur.

Mental Symptoms—Hunner reports cases in which marked mental symptoms developed and states that he is unable to say what share toxæmia played in their causation or how much of it was due to the disappointment and worry over inability to get well.

Diagnosis—From the symptoms it will be seen that off-hand diagnosis is here out of the question. The matter is one of nice differentiation and the condition will commonly be overlooked until it is more systematically included among the diagnostic possibilities. Along with cholecystitis and chronic appendicitis as causes of intra-abdominal disorders and lumbago and sacro-iliac disease as causes of lumbar pain, we should think also of ureteral stricture. When we have done this we shall have made a long step.

The diagnosis of ureteral stricture depends on the history, urinary examination, palpation of the abdomen with special reference to the kidney and ureter regions, palpation of the ureters through the vagina or rectum, cystoscopy, catheterization of the ureters and radiography. The features obtainable from the history and urine examination have already been discussed under symptoms, but experience has taught us to suspect stricture in any patient complaining of obscure abdominal symptoms, particularly in the lower abdomen, and accompanied by referred pain in the hips and thighs. In addition we usually find that the patient has a history or shows evidence of tonsilitis, sinusitis or bad teeth. A history of previous abdominal or pelvic operations from which the patient has failed to obtain relief should be given consideration. Of course one cannot judge accurately as to what past operations may have been necessary, and we must keep in mind the frequency of ureteral stricture, and the possibility that it may have been coincident with appendicitis,

FIG. III

one opposite the Iliac crest; a stone at the upper stricture obstructing the catheter, and shadow of Thorium dilating the ureter between the two strictures. Some Thorium has passed the upper stricture into the dilated ureter above the stone and some is seen in the Kidney Pelvis.

gall stones, floating kidney, intestinal adhesions, ovarian disease, uterine displacements, or any of the numerous conditions for which the former operations were done.

Palpation will often elicit tenderness in the renal region or the kidney may be somewhat enlarged and very tender during one of the acute attacks of pain. Palpation of the ureter at the pelvic brim may elicit tenderness and a desire to void. This tenderness may be mistaken for that of appendicitis, but differs from appendicitis in that while the tenderness is in the same location the pain usually complained of is deep in the pelvis and behind the symphisis. Vaginal palpation usually reveals tenderness in the broad ligament region, which is difficult to distinguish from stone and ovarian tenderness.

Cystoscopy is usually negative. The bladder appearance generally is entirely normal.

Ureteral Catheter—We have still at our disposal the ureteral catheter as a means of diagnosis, and it is to the ureteral catheter and the ureteral catheter associated with radiography that we must pin our faith. By this means, in the majority of cases, the stricture is directly discovered at the first examination. The usual manipulations will quickly determine that the obstruction is not due to a simple bend or valve-like fold. We then realize that in spite of normal urine seen coming in fairly normal spurts from the ureter, we have met with a definite obstruction. The passage of a waxed catheter up to the point of obstruction will determine (by absence of scratches) that it is not due to stone. Hunner, whose work has been confined to the female, and who uses the Kelly tubular cystoscope only, and a specially prepared catheter with a wax bulb 10 cm. from its tip says, "I do not consider obstruction to an entering catheter as diagnostic of stricture. Repeated obstruction at the same point is certainly suggestive, but for a positive diagnosis, I depend entirely upon the obstruction or 'hang' of the wax bulb on withdrawal. Obstruction of the tip at a certain point in the ureter and then obstruction of the entering bulb at the same point, and the going by of the bulb with a jump and a sense of scar-tissue grating, are points upon which we may rely with a fair degree of safety, but there are many conditions which may obstruct a catheter on entering, and it is better to depend upon the 'hang' of the bulb, its jump, and scar-tissue grating sensation as it comes through the stricture area on withdrawal."

While Hunner's technique may permit of a positive diagnosis in the female, for work on the male subject, with the unavoidable restriction in the use of instruments, and in those cases in which we cannot go by an obstruction, it is valueless. Under these circumstances the pyelogram will prove one of the best aids in diagnosis. If an X-Ray catheter with a flute tip is passed to the point of obstruction we can often get the contrast solution to go beyond the obstruction and intensify a stone if it is present, or outline the character of the obstruction and the condition of the ureter and kidney pelvis above.

The ureterogram is of great value in deciding whether a small shadow on the unaided X-Ray plate is within the ureter or whether we are dealing with a

phlebolith, or a calcified gland. In using the radiogram method the opaque catheter should be photographed in the ureter. Many stones in the ureter are in the broad ligament region. This is also true of phleboliths. Hence it is safer to use the bifocal method, as a phlebolith in the uterine vein may be superimposed on the renal catheter in the ureter, and with a flat plate we cannot make a certain interpretation.

Of even greater value is the use of these methods to differentiate ureteral stricture from supposed stone in the ureter, when the unaided X Ray has shown a shadow in the ureteral region.

Treatment—The chief end sought in treatment is the relief of symptoms, and in the infection cases a urine freed from infection and in all cases suitable for dilatation such a thorough opening of the stricture area that there will be no recurrence. This may be accomplished by two methods, (1) Mechanical dilatation of the stricture from the vesical approach, and (2) Operative surgical procedures. The simplest and in the majority of cases the best and most effective measure is dilatation of the stricture from the vesical approach by means of bougies, dilating catheters or metal instruments. If this is inefficient or inapplicable, the kidney pelvis or the ureter may be opened above the stricture, and retrograde dilatation done. If the stricture is particularly dense and the involved segment is of considerable length the ureter may be divided and the proximal end reimplanted in the bladder. Finally, if investigation shows stricture of only one ureter associated with a kidney of little or no functional value, nephrectomy is advised, but no form of operation should be undertaken until a complete investigation has been made of both sides.

In our experience thus far dilatation from the vesical side has been all that was necessary. Those doing gynæcological urinary surgery extensively seem to favor the Kelly Endoscopic Tube for this work. It undoubtedly possesses some advantages over the lens instruments, but its use is limited to the female bladder. The operative Cystoscope of Buerger is universally used to-day for instrumental manipulations in transurethral work, be it in the bladder or in the ureter. The Garceau type of catheter is the dilator of choice. At its tip it is sized 5 F., from which point it gradually gets larger until about 15 cm. from the tip it measures 11 F. This catheter will enter most ureters easily and has been very popular for ureteral dilatation work. Time will not permit us to describe the technique and further details of the process which are of interest chiefly to the cystoscopist.

SUMMARY

1. Ureteral stricture is a disease far more common, and of vastly greater importance than the literature or our previous experience has led us to believe.

2. Acquired strictures are the most common and are due to trauma or infection.

3. Symptomatology is primarily associated with the lesion in the ureter and with overdistension of the kidney pelvis, conditions producing pain of so variable a character as to promote the utmost diagnostic confusion.

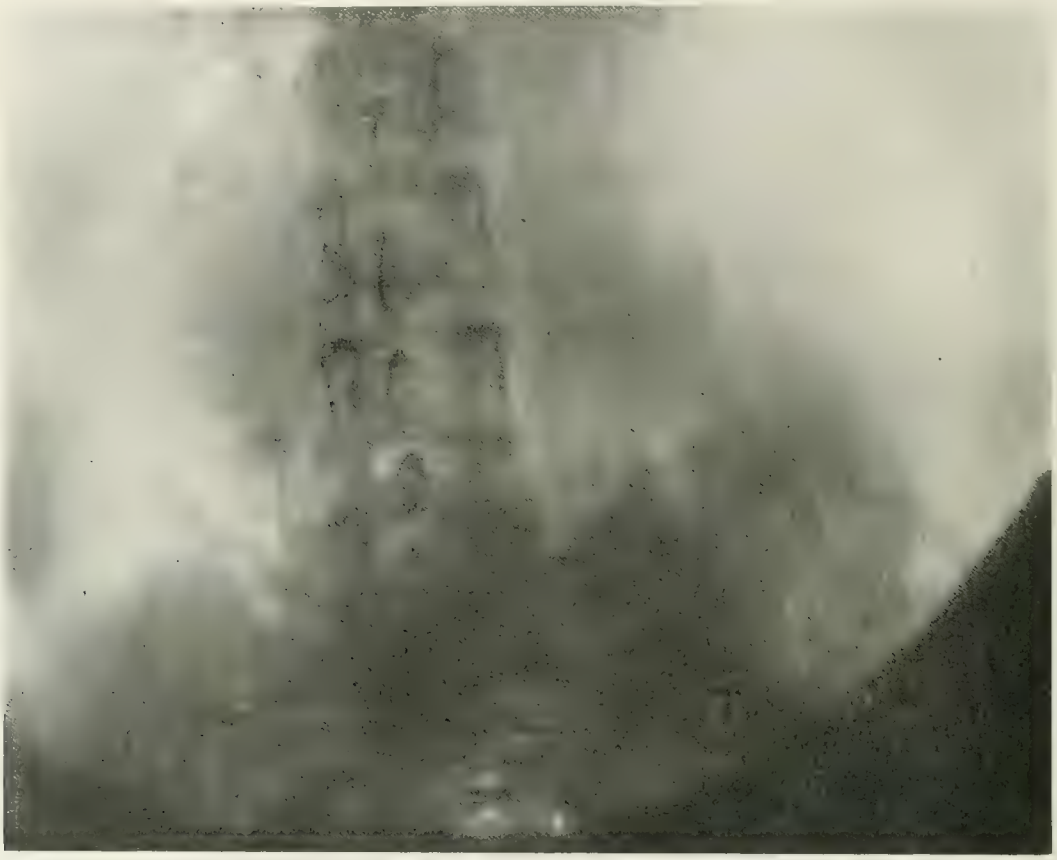

FIG. IV

Same patient as Fig. 3. Showing stone obstructing catheter, prior to the injection of Thorium.

4. The conditions most often simulated are chronic appendicitis, cholecystitis, lumbago, sacro-iliac disease and post-operative adhesions.

5. In the presence of indefinite symptomatology ureteral stricture must be included among diagnostic possibilities, and should be excluded before undertaking intra-abdominal exploratory excursions.

6. The diagnosis is made with the ureteral catheter and the pyelogram.

7. Ureteral stricture when accompaned by infection gives rise to dilatation of the ureter and kidney pelvis and if untreated eventually produces pyonephrosis and destruction of the kidney.

8. Treatment consists of thorough dilatation of the stricture from the vesical side, retrograde dilatation from above, division and reimplantation of the proximal end of the ureter in the bladder and nephrectomy.

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THE HISTORY OF INFLUENZA.*

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From the days of civilization man has been visited by plagues of various kinds. Unfortunately the pathology of those distant days attributed these visitations to divine wrath, and the history, therefore, written by ecclesiastics laid more emphasis on the religious side than on the clinical, with the result that we can recognize only vaguely the disease we now call "Influenza." Thus it may be that the 185,000 men of the host of Sennacherib, "all the mighty men of valor and the leaders and the captains in the camp of the King of Assyria," who were cut off "in a single night" by an angel of the Lord in the reign of Hezekiah (B.C. 713), were really victims of a severe epidemic of influenza. Of the same nature may have been the disease which ravaged the Grecian army at the siege of Troy. In England the records of the monkish chroniclers are so indistinct that we cannot be sure of influenza as a clinical entity till 1143, when it is aptly described as "Tussis quædam mala et inaudita" (a certain evil and unheard of cough), which affected everyone far and near, and cut off many.

The disease did not always have its present name. When Mary, Queen of Scots, was suffering from it (1562) she described it as the "new acquaintance." At other times it was named the "new delight," the "jolly rant" and the "gentle corrective." It has been called the "new disease" so many times, and for so many centuries, that, when we repeated the name during this epidemic, we simply showed that we had forgotten the main features of the last attack and that we had ceased to read medical history.

As far back as 1580 the Italians referred to it as "una influenza di freddo," alluding to the catarrh, not only in the familiar sense, but as derived from the old doctrine of humors. It was not, however, till 1741 that the name "influenza" became somewhat common in Venice and Milan. In 1743 the term was first used in England, but it was 1789 before it received the official sanction of the College of Physicians and Surgeons. The French, however, have always clung to the term "La Grippe."

It has been quite a common thing to attribute each epidemic to the country from which it was supposed to originate. Thus we speak to-day of the "Spanish" influenza, and in 1890 of the "Russian" influenza. But as far back as 1743 the Russians denied the implied accusation of that day by calling it the "Chinese catarrh," although Germany, Italy and Spain named it the Russian disease.

The exclamation "God save us," after a person has sneezed (still used so commonly on the continent) probably had its origin when the people recognized the danger of infection from sneezing.

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*Presented before the [illegible] Medical Association, January, 1891.

It is sometimes said that the therapeutics of one generation appears ridiculous to the succeeding generation; but in the light of the present age, this is not true of the treatment of influenza. Some of the old physicians were eminently sane. For instance, in 1387 we read of camomile tea, syrup of poppies, diaphoretics, enemata and low diet, and in 1790 Dr. Currie strongly advocated cold water and cold air. Even when Montaigne hurled his stinging taunt that physicians were but the priests of a bloody Moloch, we find the profession in accord as to the injury done to the patient in this disease by blood-letting. This tallies with the experience of most of us during the last six months.

In 1847, the treatment in one of the London hospitals consisted in cupping, purging and emetics: Calomel, opium, compound tincture of camphor, camphor itself and brandy.

Nor can we escape fashions even in medicine. Alcohol was first used freely in the epidemic of 70 years ago, and has since retained first place in the popular mind, a fact particularly emphasized to the medical men of Ontario in this epidemic because of recent legislation as to the sale of liquor. In 1890 the cold tar preparations were new and were used freely and in large doses. But by 1918 these had largely fallen into disfavor, and so we substituted vaccines, but with no appreciable effect on the mortality tables.

Although pandemic influenza comes as suddenly as if Pandora's box had been emptied upon the earth, there are sometimes premonitions of which we may take heed. At the siege of Troy the dogs and horses were affected first. This was also recorded in 1688 and 1733. In 1775 a plague fell upon the cattle, as well as upon the other domestic animals, with a high mortality among them all. This was closely followed by influenza, which was very mild. In 1847 the potato blight caused a failure of the potato crop in Great Britain, to be followed by a severe epidemic of influenza. Last summer (1918) potato blight was very common, for the first time for many years.

After the first appearance of influenza in England there was a period of 150 years in which we have no record of its recurrence. In August, 1323, Italy and France had rather a mild outbreak, but the first severe epidemic in Europe occurred in 1387, with the morbidity reaching 90 per cent. Paris was visited in 1403, when it is recorded that there were 100,000 sick; and again 1410. The symptoms described at this time have a familiar sound—fever, weakness, violent cough, epistaxis and abortion in pregnant women.

In 1427 the St. Alban's chronicler describes "a certain rheumy infirmity called "Mure," which invalided the whole people and so infected the aged along with the younger that it conducted a great number to the grave." As this was also the year of the comet, even physicians were tempted to reason *propter hoc*.

The first pandemic appeared in England in July and August, 1510. The gastric and nervous symptoms were most pronounced and sweating was common. The mortality, however, was quite low.

Since that time there have been 17 pandemics affecting Europe mainly, and 13 in the Western hemisphere.

The epidemic returned again in 1557-62, this time with a high mortality. With corn at famine prices, about one-third of the population were afflicted with a strange fever and "died many of the wealthiest men all England through." Mary, Queen of Scots, was one of the sufferers. The outstanding features were sweating and abortion.

In midsummer, 1580, the second pandemic reached England, and raged so severely that "hardly the twentieth person was free of the disease." Millions were struck down with the fever (lasting from 4 to 15 days), the epistaxis, otitis and vomiting that characterized this pestilence. Again it is recorded that blood-letting was fatal.

Four score years later (1658) a very severe attack fell upon Europe so "a third of mankind almost was distempered within the space of one month." "In a week or a fortnight's time . . . . it quickly tended to a height and struck many thousands in London down . . . . suddenly sweeping many away" (Whitmore). The symptoms recorded by Willis were fever, pain in the head, back and limbs, great weariness, followed by cough with bloody sputum. Epistaxis and bleeding from the bowel were quite common.

The attack in 1675 was short and sharp, for it trebled the death rate in London for a few weeks. In the year of the great revolution (1688) horses were first affected. The mortality among humans was not very high, so that the historian notes: "Never were so many people sick together; never did so few die."

The slight visitation of 1712 is only remarkable because Patrick Walker considered it a punishment for the union of England and Scotland, and for the presence in Scotland of the "people of these abominations" (the English).

The pandemic of 1729-30 spread from Russia "like a hurricane all over Europe," returning again as a pandemic in 1733. Huxham at this time emphasized the importance of putting the patient to bed early.

When the great pandemic of 1742-43 fell on Europe the name "influenza" was used quite commonly in England. This was a particularly severe attack beginning in Saxony in September, 1742. Rome recorded 500 deaths a day and Spain was almost depopulated. In spite of past experience, when it reached London in April, some of the physicians practiced phlebotomy, "till," as Horace Walpole says, "our army abroad would shudder to see what streams of blood have been let out." The results of this treatment were as disastrous as usual. All the ordinary symptoms of the disease were repeated in this epidemic, and added to it was a severe inflammation of the skin, followed by desquamation.

There were recurrences in England, the one in 1762, afflicting almost everyone in the country, but the pandemic of 1782, which began in India and China, spreading through Siberia to Europe, laid low almost three-quarters of the population of London. Many physicians wrote mongraphs after the attack was

over, so that we have a fairly complete record. Sweating and hemorrhages were very common. In the summer of 1788 there was a partial epidemic which was fatal to horses and cattle, but very mild in man.

The early days of the 19th century saw a mild pandemic, which reached London in February, 1803; another in America in 1816, which was fatal to children in a few hours, and a third, which ranks among the most severe in history, in 1830-33. Graves, the Dublin physician, vividly portrays the startling suddenness of the attack, the great heat of the skin, the intolerable violence of the headache, together with the cough and wheezing and the great oppression of the chest. Pleurisy and pneumonia were common sequetæ, and bleeding was again found to be most harmful. The prostration both during the attack and after was severe. The mortality was high among the well-to-do, but totalled about 2% of those afflicted.

1847 saw another severe pandemic, which raged in Constantinople in August, passing swiftly across Europe to London and Edinburgh in November. In six weeks 5,000 persons died of influenza in the metropolitan district of London, where accurate records have been kept for several centuries. The cause of death then, as now, was pulmonary complications. One-quarter of the population were ill. During the hot summer preceding, erysipelas was unusually prevalent, as it was with us last year. The symptoms of this attack, as described by Peacock, physician to the City of London Hospital for diseases of the chest, were a sudden onset with chilliness or rigors; pain in the head, chest and extremities, sore throat, a dry, hard cough, and great prostration. The headache was most distressing across the forehead. There was tenderness over the eyeballs, increasing towards evening. The slow pulse, the epistaxis and the general lividity complete a syndrome that we have all seen many times during the last few months. His mortality in hospital was from 17 to 22%, and at least 45% of those with definite pneumonia. The total death-rate in all England he estimated at from 3 to 4%.

After this many minor epidemics fell upon both Europe and America. The more rapid methods of communication between the hemispheres obliterated the oceans as bārriers to the progress of the disease, so that in 1874-75 both continents were visited almost simultaneously.

Again in 1889 and 1890, the influenza of the early winter in Petrograd and Moscow reached London in January and New York a month later. Following the lines of travel, it soon presented itself at all the large cities of the continent, nor did any little hamlet escape this most pervasive of all infections. The deep-sea fishermen, however, were missed.

The noteworthy features of this epidemic were its rapid spread, surpassing anything previous, and the waves of recurrence in 1891, 1892 and 1893-4. On the continent the first attack was the most fatal, but it was rather mild in Great Britain, where the mortality was highest and the attack most protracted in the second wave in 1892. The great prostration, particularly among the aged, the

excruciating pains in the back and the joints, and the prevalence of bronchopneumonia, are features of this penultimate epidemic that some of us have not forgotten from our own unpleasant experience with it.

In considering the present epidemic, it is well for us to bear in mind that, high as is our death rate, it has been overtopped in the past. There is nothing to show that the disease is steadily increasing in severity. The outstanding symptoms have been the same as at other times—sweating, premature births, great prostration, cyanosis.

From the historical standpoint, therefore, we can say that influenza is a pestilence which, with the exception of plague and cholera, has on occasion travelled farther and more rapidly over the globe than any other disease. Other epidemics may wax and wane, or even disappear entirely from the face of the earth, like the sweating sickness or the agues of the middle ages, but influenza still remains with us. Untouched by civilization, uncontrolled by any public health measures we can devise, unchanged by any sanitation or medication we can invent, it claims all seasons for its own. It comes when it listeth like the dragon of old, sudden, swift and transitory, taking its toll from a population as utterly defenceless now as in the days of Andromeda.

REQUESTS FOR PHOTOGRAPHS

We take great pleasure in announcing that, in response to many enquiries for photographs of the eminent physicians, appearing biographically in the different issues of the Canadian Medical Monthly, we are now able to supply them to any of our subscribers upon request.

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Ontario Medical Association

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May 25th, 26th, 27th, 28th, 1920

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Every effort is being put forth to present a programme of interest and instruction. Watch the Medical Journals for further announcements.

National Anaesthesia Research Society

Announcement is made of the launching of the National Anæsthesia Research Society, with the avowed purpose of collecting data and prosecuting original research in this field of medicine. The objects of the Society as set forth in the constitution are:

"To promote the science of anæsthesia and to enable its members, after first having obtained the approval of the Society, to submit without prejudice to the dental and medical professions, any views, findings, or accomplishments they have attained to; to obtain from all available sources such information as is now extant concerning any material, liquid or gas, known to have anæsthetic properties; to arrange, in co-operation with dental, medical, and anæsthesia associations for the preparation and delivery of suitable interesting and educational papers on the general subject, or relative to some particular anæsthetic; to use influence to prevent the publication or circulation of any false or unauthentic statements concerning any and all conditions, symptoms, or phenomena prevailing during or after anæsthesia by any anæsthetic, and to prepare and distribute on request, forms on which such information can be tabulated with uniformity; to distribute by pamphlet or publication, as its funds may permit, and its governing powers authorize, such reliable data as it may collect or obtain through its members or others interested in the subject of anæsthesia, for use by the medical and dental professions; to co-operate with state authorities and other bodies in the preparation of suitable legislation to safeguard those to whom anæsthetics are administered as well as those called upon to administer them; to use its influence in every way and to give its aid toward the advancement of the Science of Anæsthesia."

The Research Committee, which will have supervision of original work and the editing of material designed for the profession and professional press, is headed by F. H. McMechan, A.M., M.D., of Avon Lake, Ohio, Editor of the Quarterly Supplement of the American Year Book of Anæsthesia and Analgesia. W. I. Jones, D.D.S., President of the Inter-State Anæsthetists' Association,

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MONTREAL

will have an active part in the committee's work. Representative anæsthetists of the country who have distinguished themselves by research and progress in their field, are being invited to join the committee.

The Society has been endowed with limited funds which will permit it to demonstrate that there is a field of usefulness for it.

THE PNEUMONIC LUNG

In an age when the written word runs into millions every year, fearless, indeed, is the writer who dares to produce "mere words." To hold a reading audience, facts, and facts only, are an essential, and the portrayer of facts is the popular author of the day.

The physician, in his ever constant search for additional knowledge, is entitled to the best there is, and with this end in view a brochure, "The Pneumonic Lung," has been published in the belief that therein the discriminating physician will find some facts which will aid him in the pursuit of his professional duties. The text matter of this booklet is the result of long and exhaustive study of the literature on pneumonia in its different phases, and in its preparation the works of practically every standard author who has discussed internal medicine have been consulted. The clinical records of hospitals have been a source of information and confirmation; the most recent discussions on pneumonia in American, British and French medical journals have been perused, and no field which would yield information has been left untilled.

The illustrations have been painted especially for the accompanying text. The subject has been given the closest attention and study, and no opportunity has been neglected to attain the close pathological and anatomical touch so essential in bringing out the necessary details, thus adding to their practical value. Expense has been no factor in the production of this brochure. With the object of presenting to physicians a booklet which would refresh their knowledge of the

etiology, pathology, symptomatology and treatment of a most destructive disease, and in order that they might constantly have at their elbows an authoritative and most practical exposition of the subject, the authors have gone deeply into the matter.

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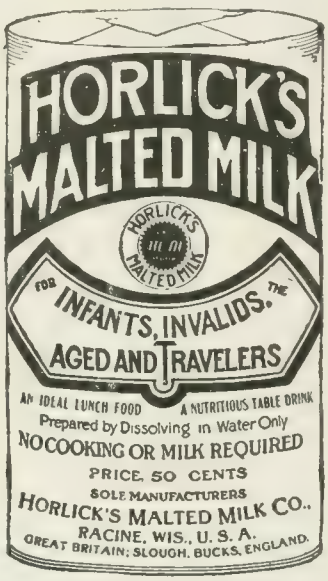

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Current Medical Literature

Hæmorrhage Following the Opening of a Peritonsillar Abscess.

ARTHUR J. HUTCHINSON, M.D.,

Jour. Laryngology, Vol. xxxiv., No. 4, April, 1919

The patient was a girl aged 16, who developed a quinsy which burst spontaneously, but after a few days reformed. Five days later the author first saw the patient, who was profoundly septic and had great difficulty in swallowing or opening the mouth. The right tonsil was pushed beyond the middle line and there was a large tense looking swelling of the anterior pillar and soft palate, with œdema of the uvula. Externally a large tender swelling extended well down the neck. After feeling for the customary soft spot in the soft palate, the quinsy was opened with a pair of Thomson's forceps. introduced, but their withdrawal was accomintroduced, ut their withdrawal was accompanied by a gush of blood. The patient, greatly alarmed, immediately sat up, coughed and spat mouthfuls of blood over the bed and all around. Gentle pressure with the finger on the edge of the incision easily stopped the bleeding.

A swab on a long handle replaced the finger and pressure was kept up for about twenty minutes. Three-quarters of an hour later the patient complained that the throat was swelling up inside. She suddenly sat up and blood began to pour out of her mouth again. Application of the swab rapidly controlled the bleeding. The question now arose as to what should be done to prevent a recurrence. Tying the carotid was ruled out by the septic condition of the neck, and plugging the pharynx obviously out of the question. The patient was constantly watched and no recurrence of the bleeding took place. The patient gradually sank and died of syncope during the night.

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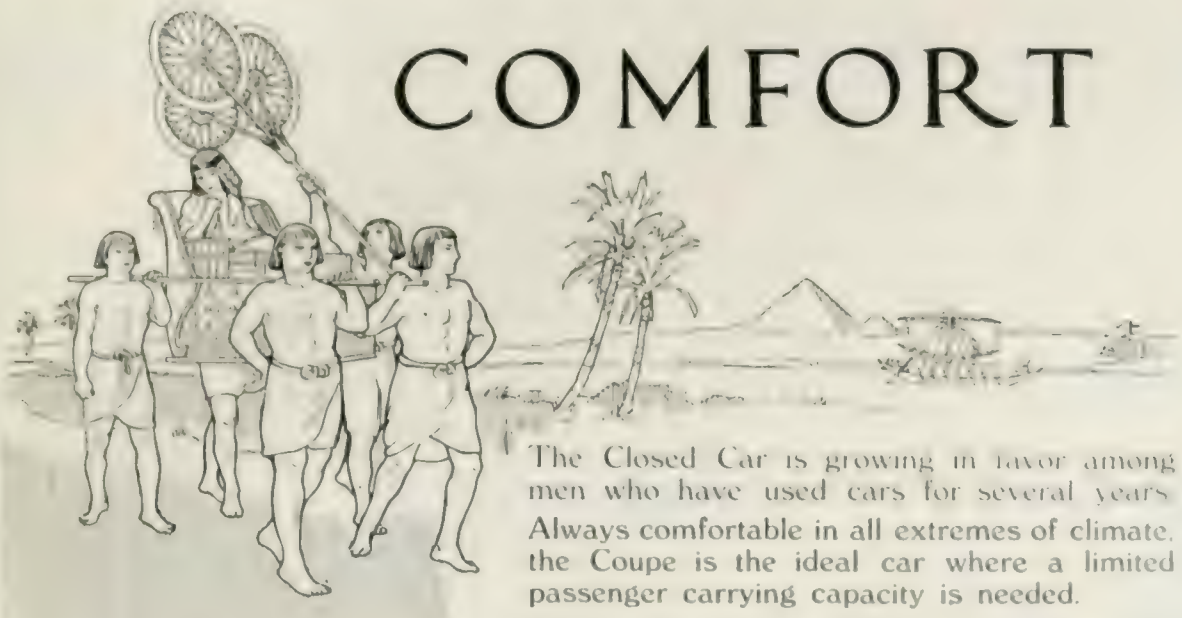

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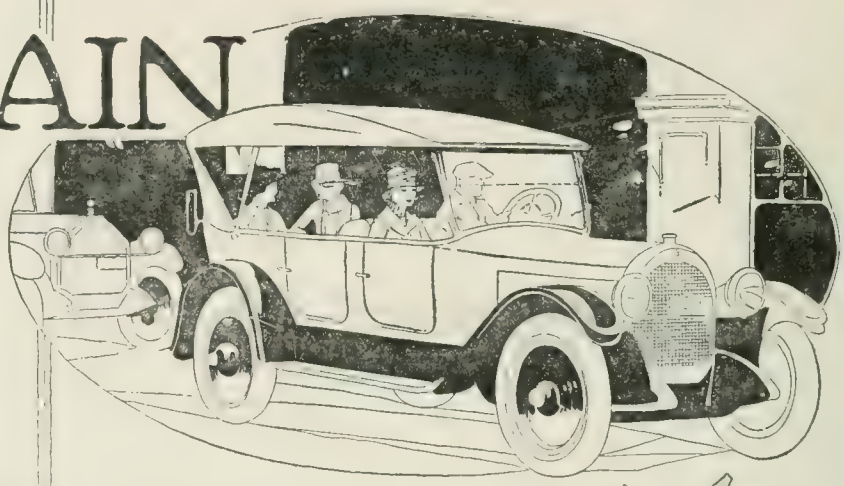

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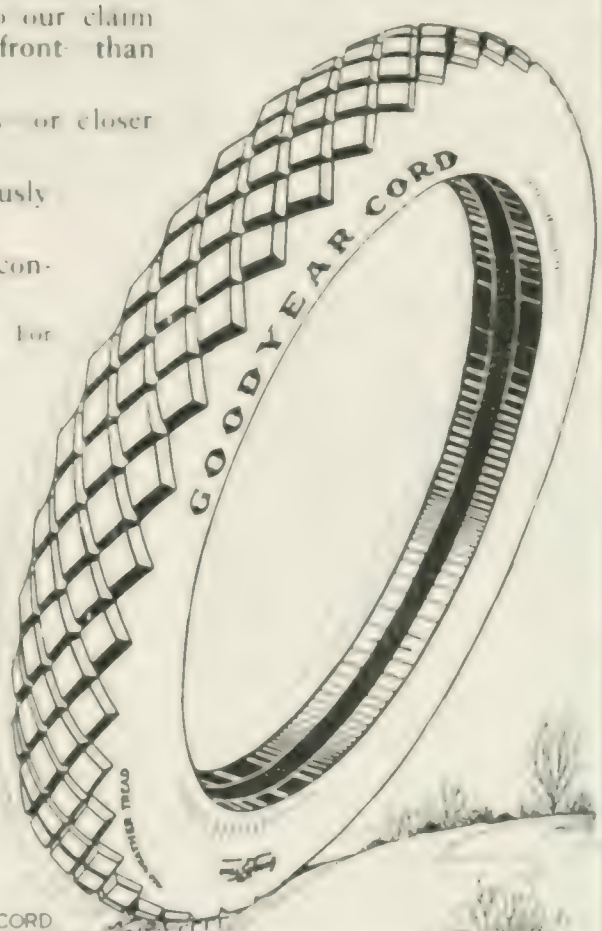

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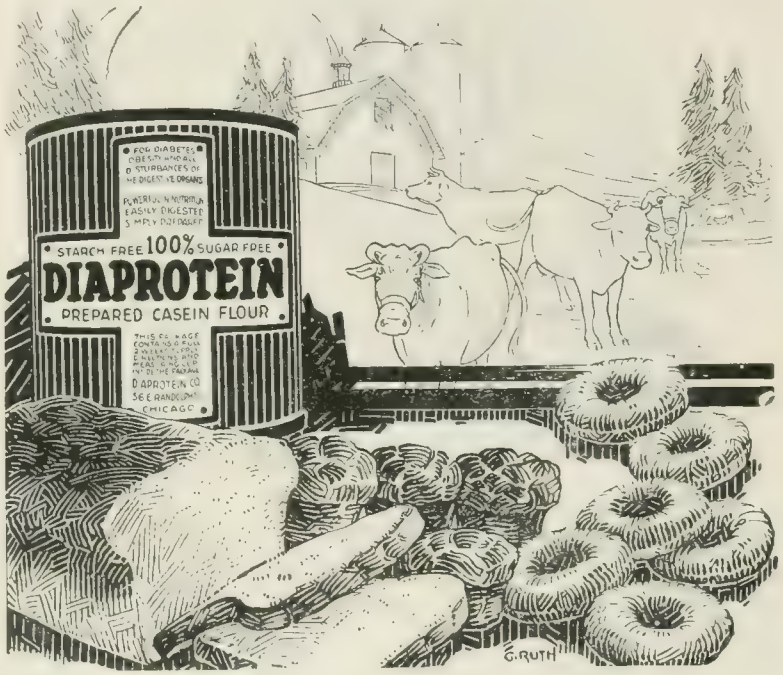

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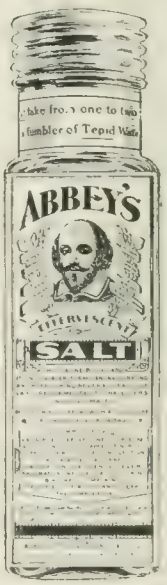

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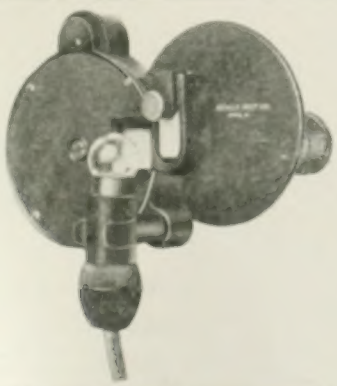

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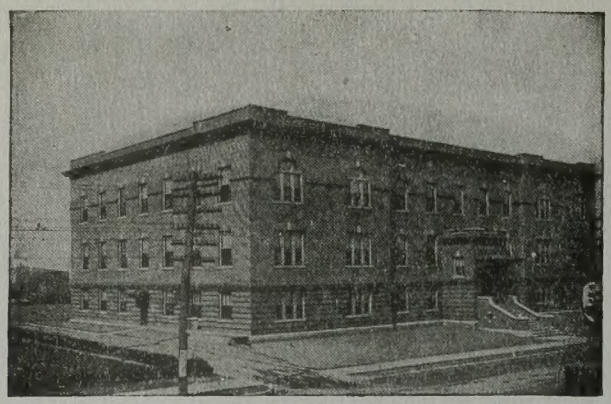

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